





ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times,

On 20 lines and upwards, 3 times. 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

1 will send the REVIEW with-

Gleanings, (new) (\$1.00) \$1.75
American Bee Journal (new) (1.00) 1.75
Canadian Bee Journal
Progressive Bee Keeper (.50) 1.35
American Bee Keeper (.50) 1.40
The Southland Queen
Onio Fermer (1.00) 1.75
Farm Journal (Phila.) (50) 1.10
Farm Poultry (1.00) 1.75
Rural New Yorker (1.00) 1.85
The Century
Michigan Farmer (1.00) 1.65
Prairie Farmer (1 00) 1.75
American Agriculturist (100) 1.75
Country Gentleman (2.50) 3.15
Harper's Magazine (4.00) 4.10
Harper's Weekly (4.00) 4.20
Youthe' Companion (new) (.75) 2.35
Cosmopolitan
Success, 1 75

50 Golden Breeders.

We are wintering to absolutely straight fivebanded Freeders 200 fine select, tested queens, and so tested; all reared last fall under the most Lorable conditions Our stock is the very best that money and skill our product as proven by our testimonials. We use the best methods, guaranthe satisfaction, and give away a large number of valuable premiums

We want your name and address that we may send you our free circular which gives valuable information, and tells why we are able to supply the best queens in the world at living prices.

Our Mr. H. H. Hyde will again have charge of our queen department

Prices, on either Goldens schanders, or Holy Lands, are as follows. Untested, in June, July, Aug and Sep , one for 75 cts , six for \$4.25; in all other months one for sion, six for spool tested, one for \$1.25, six for \$1.75, select tested, 52.00 each. breeders, \$1,00 to \$5.00. Discounts on large lots.

O. P. HYDE & SON,

N. B. We can furnish Root Hutchinson, Leahy and other breeders' queens in wholesale lots. Let us supply you.

Please mention the Review.

Names of Bee - Keepers.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2,50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 46	Ку 182	N. C60
Ark 130	Kans 350	New Mex 26
Ala 30	La 38	Oregon 104
Calif 378	$\mathbf{M} \odot \ldots = 500$	Ohio 1,120
('oto 228	Minn 334	Penn 8,6
Canada 846	Mich. 1,770	R. 1 48
Conn 162	Mass 275	8. C 40
Dak 25	M(1 . 94	Tenn 176
Del 18	Maine, 200	Tex 270
Fla 100	Miss 70	Utah 68
Ga 90	N. Y. 1,322	Vt
Ind 744	Neb 345	Va 182
Ills 900	N J 180	W. Va 172
Iowa 800	N. H 126	Wash 128
		Wis 500
	TTT FF TEXTON (TEXTO	TOTAL TOTAL I MAY 1

W. Z. HUTCHINSON, Flint, Mich.

Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coil Wire 60
61 Section Cases (Wide Frame and tin sep-
arators) at
6 § Covers at
53 Bottom Boards at
53 Honey Boards. Queen excluding at15
30 Escapes at
50 Feeders (Heddon Excelsior) at 25
30 Alley, Queen and Drone traps. at 35
All of the above one is my suggestion and can

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

Winter

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from improper protection; from a cold, wet, or possibly, a poorly ventilated cellar, ctc,, etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points consult "ADVANCED BEE CULTURE." Five of its thirtytwo chapters treat as many different phases of the wintering problems.

Price of the book; 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON, Flint, Mich.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and Weed Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy o[‡] The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

JAMESTOWN, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

Send us a list of what goods you what and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y

W.O. Victor,

Henry Schmidt.

QUEEN SPECIALIST
Wharton, Texas.

IN SECURITY SHIPS THE SECOND

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I have as good stock as there is in the United States, so says the A. I. Besides having selected choice queens from my own stock from time to time during the entire season, I have bought select queens from a number of breeders of high repute. In addition to these I have a dozen imported queens due to arrive direct from Italy any day. To this add an extra select tested daughter of the A. I. Root Co's. \$200 red clover queen, the bees of which have a reach of 21-100 of an inch, and 3 select queens of Moore's long tongue strain, and I feel that my stock is at the top of the present development of sup i ority. Untested queens, \$1.00; tested queens, \$1.50: select tested queens, \$2.50 to \$5.00. Root's goods at Root's pr ces, plus the car load freight.

Hutto, Tex., April 10, 1900

T. F. Bingham,

Enclosed find \$1.75

Please send me one brass smoke engine. I have one already. It is the best smoker lever used.

Wm Bamber,

Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-It

Dittmer's Foundation

At Wholesale and Retail.

0

This foundation is made by an absolutely non-dipping process; thereby producing a perfectly clear and pliable foundation that retains the odor and color of beeswax; and is free from dirt.

Working wax into foundation for cash, a specialty. Write for samples and prices.

A full line of Supplies at the very lowest prices, and in any quantity. Best quality and prompt shipment. Send for catalog. Beeswax wanted.

GUS DITTMER,
Augusta, Wisconsin.



Bee - Supplies.

Root's goods at Root's prices. Pouder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Pouder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Do you want thoroughbred, pedigreed,

Belgian Hares,

at reasonable prices, if you do, order from the Flint Belgian Hare Association which has just been awarded

Fourteen Medals

and ribbons, and fifteen special prizes on its exhibit of imported and domestic hares at the Michigan, State, Belgian Hare Exhibition. We have the latest, leading strains of the grandest blood to be found either in England or America. Satisfaction guaranteed on every shipment.

Flint Belgian Hare Asso. Flint, Mich.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

384 Ruby St.,

Rockford, Ills.





Longest Tongues!

For two years I have been advertising and selling a superior strain of bees. knew that they were really superior, that they stored more honey than any other strain of bees with which I was acquainted, and that others who had tried them had the same report to make; I knew that they were gentle and hardy, as well as industrious, but just why they should store more honey I was unable to decide. It is possible that I do not now know why, but, at last I have got a hint—they have very long tongues. The average length of bees' tongues is 16-100 of an inch, while these bees have tongues 23-100 of an inch in length. Only one other report has been made of bees having tongues of this length. This breeder, who has been furnishing me queens, has been breeding this strain of bees for more than 20 years, always selecting the best to breed from, and, for this reason, this trait, or peculiarity, that of having long tongues, must have become fairly well fixed-nuch more so than in that of some chance sport. The discovery of this reason for their superiority is the source of considerable satisfaction to me. Heretofore, I could only assert that the bees were superior, that they would store honey, but I could give no reason why, except that this trait had been developed by years of selection and careful breeding; now I can say why, or, at least, give a reasonable reason why.

I wish to repeat what I have already said several times, viz., that it is impossible for a bee-keeper to invest a sma'l sum of money to better advantage than by introducing this strain of bees into his apiary. It will repay him a hundred fold—perhaps a thousand fold. In addition to their known length of tongue, there are also the additional traits of hardiness, and gentleness—something well worth considering.

To those who are thinking of trying this strain of bees, I would say don't wait until next spring before sending in your order. Last spring, when I began sending out queens, there were orders on my books for nearly 200 queens. Orders are already coming in to be filled next spring. They will be filled in rotation, so, if you wish to get a queen next spring, send in your order this fall. The price of a queen is \$1.50; but safe arrival, safe introduction, purity of mating and entire satisfaction are all guiranteed. The queen can be returned any time within two years, and the money refunded, and 50 cents additional sent to pay for the trouble. The Review one year, and a queen, for only \$2.00.

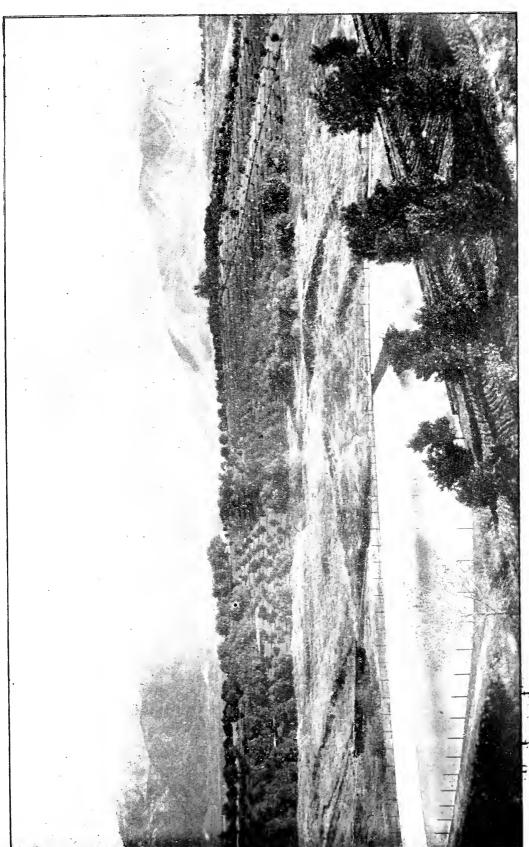
WOODLAND, Ills., Nov. 20, 1900.

Mr. W. Z. Hutchinson-

Can any more of those queens be purchased of you next season. The one I bought of you ast June out-stripped everything in this vicinity. As a breeder, she certainly capped the climax of anything that ever came under my observation in the bee line. And her offspring—well, they are simply marvelous as workers. From her colony, in September, I extracted 65 lbs. of honey of the finest quality; and, remember, the honey season here was a very poor one. There are a number of apiaries in this vicinity, and I do not know of one that will average to lbs. per colony. And I want to add right here that the cappings of the honey in this colony were of snowy whiteness; and, to day, as I put this colony in winter quarters, I find the eight combs well filled and capped with that same snowy whiteness that was so conspicuous in the supers. I stand ready to challenge any apiarist in this locality to produce bees the equal of these as honey gatherers. Two of my friends wish to get queens of this strain, and I certainly want more of them if they can be gotten.

Yours respectfully, C. E. AURICK.

W. Z. HUTCHINSON, Flint, Michigan,



A CHARACTERISTIC SOUTHERN CALIFORNIA VIEW-EAST SAN BERNARDING VALLEY.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL VIV, FLINT, MICHIGAN, JANUARY 10, 1901. NO. 1.

OME FEATURES OF CALI-FORNIA BEE-KEEPING. BY RUSSELL J. HALL.

The photograph sent you shows East San Bernardino Valley, the home of many bee-keepers, and the mountains to the north and north-east, the natural habitat of the sage which some consider the producer of the very choicest nectar.

The whole is so good a view, and so characteristic of what Southern California is at its best, that it seems just the kind sought by the Review. Of course, not knowing the requirements of a photograph for satisfactory reproduction, I cannot determine as to its usefulness for reappearance in print.

To begin with the foreground: there is a side-hill orange grove, shown in part, where the free cultivation usually practiced here shows up very plainly. The flume for carrying the water also shows between the grove and reservoir. The reservoir is one of many another like it hereabouts, and belongs to a company of orange growers, and the water supplied by it covers many groves. Reservoir and flume and grove, together with mountain scenery, make this a truly representative view of the country.

The intake of the reservoir clearly appears, but the source of the water is up among the mountains, near the "vaulted skies," just a little this side of the angular peak which seems to be highest. is Mount San Bernardino-something over 10,000 feet above the sea. Grayback, further to the right and not so conspicuous nor well defined, is still higher. As stated above, it is just a little this side of San Bernardino peak where the great reservoir lies-one of the greatest reservoirs for the artificial storage of This is Bear Valley Lake, or reservoir, the source of much of the water for this part of the Valley.

There are many apiaries in the mountain valleys and foothills about this valley; the apiarists often living in the towns of the valley of which Redlands is chief. So you see, it comes about that often here in Southern California an apiarist may have one or more out-apiaries with none at home.

There is one kind of honey produced which contests with sage the title of supremacy in quality, and that is orange honey. Near the valley this forms a very desirable resource, and the extensive irrigation makes orange honey a reasonably sure asset for the bee-keeper. But it does happen now and then on account

of unfavorable, cold and cloudy weather this resource is not available. Our principal harvest this year came from orange and wild buckwheat.

But the unusual succession of dry years has told heavily against bee-keepers. While generally this year has been classed in the dry series, there have been the mitigating conditions of many seasons of foggy and cloudy nights and days together with some rain through the summer. This augurs well for the coming year.

In fact, everything seems to indicate that the coming season will be normally good. There have been several showers already this fall—in fact it is raining now—a good slow steady rain, the kind the earth drinks down and wastes none. Wish I might send you another photograph of the same scenery as this, taken right after a shower like this, and in the natural colors—then you would see something pretty nice.

CRAFTONVILLE, Calif., Oct. 13, 1900.



HY SOME TEXANS PRODUCE CHUNK HONEY.
A REPLY TO MR. FLANAGAN. BY H. H. HYDE.

It was with a kind of surprise, mingled with sympathy for the writer, that I read



the article by Mr. Flanagan in the November Review, in which he not only proceeds to give chunk honey a black eye, but myself also. I will tell in a few words why I prefer to produce chunk honey.

The first reason is that from 1½ to 2 times as much chunk honey can be produced as can of section honey. Why?

Because when bees are working in sections they are cut off into 24 or more little apartments, thus losing the heat and comb-building advantages to be found where bees can work in one solid mass, the advantages of which are many, for bees have a peculiar antipathy to too much wood; they seem to think that there is just a little too much wood for the honey it is to contain; then there is an entirely open space between shallow frames and the brood-nest, whereas, with sections, there is an almost continuous sheet of wood. This advantage lies chiefly where we have weak colonies, or when the nights are cool. It is needless to say that we, as well as all other prominent southern bee-keepers, have proved the above by practical tests in the apiary by running one-half for section honey, and the other half for chunk honey, and vice versa.

Then it does not cost as much to prepare bulk or chunk honey for market as it does to prepare sections, while the cans to hold chunk honey cost a little more than shipping-cases for sections, we do not have to throw our frames away as is the case with sections; also, we can ship it for one-half less freight than we can section honey; and, last but not least, there is no loss for breakage as is nearly always the case with sections. This loss is often quite serious. Again, in the packing of this honey, we always get in about one-third extracted honey, for a 60-lb. can will hold only about 40 lbs. of chunk honey, it taking about 20 lbs. of extracted honey at the comb honey price. Again, we can often use these shallow cases during a slow flow, and secure a good deal of honey, when, if sections were used, we could get nothing. we can get all the honey the bees make in marketable shape, for we do not have any unfinished sections to fuss with.

But Mr. Flanagan says that this honey cannot be taken from the can without tearing up the honey. In this he is mistaken; for, as this honey is always produced with full sheets of foundation, which serves to hold the honey solidly together in shipping, it also makes it it very easy to remove the pieces of comb from the cans, and that without breaking as Mr. Flanagan seems to think. Of this he can easily satisfy himself if he will come around where we are putting up honey, or where merchants are retailing the honey.

Again, there is another fact which bears on this subject, and that is, that while producers can easily afford to sell this honey at one or two cents a pound less, it is just this, coupled with the full weight that buyers receive, that makes them so much prefer to buy chunk honey in preference to section honey. In any given locality we can sell as much again chunk honey as we can section honey, where we offer section honey alone.

Now, to Mr. Flanagan's last question about the demand for chunk honey that first started Texas bee-keepers to producing this kind of honey. The demand seems to be unlimited. During the past year we received orders for something like 70,000 lbs. of chunk honey. amount we were able to ship only some 25,000 lbs. We could have secured more orders if we had solicited them. one man we had in four different orders; a total of some 125 cases. Another was for 100 cases. Another wanted 70 cases at once, and 70 more soon, if we had them. Both of the last orders we were unable to touch. I am enclosing a couple of letters so that the editor can see for himself that my statements are true.

I have just been talking to my father, and we agreed that we could get orders for some 500 cases of chunk honey for spring delivery, in 24 hours time, if we wanted to.

As to the candying part of the business we will say that the Texas people had just about as soon have it that way as any other; and I assure you they do not live on hard tack and sowbelly. However, as a matter of fact, there is very little candied comb honey, for if it is not disposed

of before cold weather it is piled away in the frames ready to be cut out, as orders call for it.

I will say for Mr. Flanagan's benefit, that the 100 cases of honey referred to wera out of place at the time; for the people that far north had not then learned its merits. I will also say that this year we had an offer for chunk honey from a Chicago firm that offered 8 cents F. O. B. Chicago; but as we were getting 9 and 10 cents for all we had, the offer was rejected. I mention this only to show you that even the yankees are slowly catching on to the merits of chunk honey.

No, no, friend Flanagan, as long as I can make twice as much money raising and selling this kind of honey, I am going to do it; and you certainly would not blame a man for honorably yielding to the strongest nerve known, i e, the pocket book nerve. You will do it yourself, as well as any other man.

Trusting that you will soon see this matter as I do, I shall leave this subject with you for a while, at least.

HUTTO, Texas, Jan., 1901.



XPERIMENTS WITH FREE
COMMUNICATION IN SUPERS NOT SUFFICIENTLY
EXACT NOR DECISIVE. BY

F. L. THOMPSON.

On page 343 of the Review, Mr. Louis Scholl, in an article setting forth the essential procedure necessary to procure well-filled sections (that is his own term—not "better"-filled sections, as given in the title put on by the editor) refers to "Some that even trot out their proof, resulting from experiments made with the different kinds," and adds "Mr. F. L. Thompson is one who has said much on this subject, and has also tested the worth of different kinds of separators and super arrangements, but he has never given any real cause of better filled sections." Further on, he gives what he considers "the

most important feature" in securing "the very best filled boxes of comb honey," and says if you arrange your sections in the super so as to include that feature, "you will have well-filled sections."

I am at a loss to understand the significance of the word "even" in "Some that even trot out their proof." Is not that just the thing to do?—But, on second thought, I believe I see. The original promoters of the class of goods referred to have not only said "much," but have said by far the most on the subject; and they are not so incautious as to "trot out the proof." It would be very poor business. The thing to do is to keep the idea before the public by means of sounding phrases and glittering generalities, and never risk the essentials by so dangerous a thing as proof, which might veer the wrong way-and then where would their prestige and their gluing-machines be? So we have become accustomed to large doses of talking around the subject, and it is no wonder that it seems queer to trot out the proof.

Mr. Scholl says I have never given any real cause of better filled sections. page 205 of the Progressive, I ask the question "Is free communication between the edges of section combs of any value?" and proceed to answer it by the results of experience. If that is not giving the cause as well and as plainly as can possibly be given, I give it up, and wish Mr. Scholl would tell us how I should have expressed it. I notice he himself expresses his idea of the most important feature thus: "Free communication Especially right around the edges of the sections, all around."

There are several methods of testing the worth of "free communication right around the edges of the sections, all around." There is the Aspinwall separator with plain sections, the Hyde-Scholl separator with ditto, and open-sided sections without any separators. Of course these devices should be compared with others in the same super which obstruct the passage from edge to edge of combs

in the same row; such as fence-separators with plain sections, or ordinary sections with or without separators. For the purpose of a test, that method is best which *isolates* the principle tested.

Then it is asserted that free communication across, between the rows, also tends to better filling; then when we are testing only free communication between edges, it is advisable that other should either be shut out from devices tested, or be If free communicapresent with both. tion across is to be shut out while testing free communication laterally, then Aspinwall separators with plain sections should be compared with ordinary sections with plain separators. If it is to be equally present with both, however, the simplest way is to have no separators at all on either side, and use open-sided sections on one side, and closed-sided, or ordinary, This method is sections on the other. the one I employed with fourteen supers; and I found that the sections which had free communication between their edges averaged 23 per cent. better than the Why did not Mr. others in filling. Scholl tell the readers of the Review this? Is it because the result was so trifling that it disappointed him, and, like Gleanings, he thought it better to employ a generality, and say "well-filled sections," than to say how well-filled they

This brings us to a criticism that applies not only to Mr. Scholl's article, but to a great many others on this and related subjects. Why don't they give some sort of an idea how much they claim? It is not necessary to be exact. But approximate statements should be made, at least, for otherwise we have nothing to go by, unless we blindly follow the leaders. Mr. Scholl, having said "You will have well-filled sections" now owes it to the readers of the Review to state how well-filled they will be, in comparison with sections which do not employ the device which he says is the real cause of well-filled sections; and not mere-

ly to make the unsupported statement, but to give the facts which lead him to the conclusion, in order that we may judge for ourselves. Furthermore, the facts themselves should not be generalized, but stated specifically, just as they occurred. It will not do to say "Last season I tested this device in comparison with others, and the results were favorable." Such a statement has value whatever. But a statement like this would be worth something: "Last season I fixed up seventeen supers with Hyde-Scholl separators and plain sections on one side and fence-separators on the other, and the sections between Hyde-Scholl separators had about twice as many cells capped along the upright edges of the combs as the sections between fenceseparators, and in no one super the difference fell below 50 per cent." I don't believe Mr. Scholl can make any such report, or ever will be able to; but that will serve as an illustration.

Now comes up an important point. What constitutes a well-filled section, in comparison with one not well-filled? it not astonishing, that for three years, after all that has been said on this subject, this root of the whole matter has not once been exposed? It illustrates the fondness of bee-keepers for being humbugged; and a humbug the whole discussion is, from first to last; and none know it better than those who sell the goods, and manage the discussion in such a way that genuine tests are not encouraged. My idea of a well-filled section is one that is 100 per cent. better than the one that is compared with it; or, in other words, has twice as many cells capped along the upright edges, or only half as many passage-ways in the comb, as the one compared; and of the two characteristics, the former is much more important than the latter. Why 100 per cent. bet-Because nothing less than this makes much of an impression on the eye. When one case of honey contains combs about 50 per cent. better filled than another, the difference is just preceptible

to the lay mind—the grocer or consumer; and they are the ones who pay us our money, and make it worth while to discard one fixture for another, or keep on with the old one. Anything less than 50 per cent., therefore, does not count, from a practical point of view. But 50 per cent. itself does not justify the term wellfilled, when the difference is only just perceptible in actual business. I therefore challenge Mr. Scholl to prove, satisfactorily, that either, I, sections arranged as he advises are approximately 100 per cent. better filled than sections not so arranged, other conditions being same; or, 2, that 50 per cent. and 100 per cent. better filling are, respectively, erroneous standards for perceptibly better and good filling, and in this case to state what his satisfactory and specific proofs are that sections arranged as he advises attain his own standard of good filling; compared with sections not so arranged but having all other conditions the same; and what his own standard is. Yes, and while he is about it, I would esteem it a favor if he would state what he considers the relative importance of free communication in the super, when compared with I, strain of bees, 2, condition of colony, 3, character of flow, with reference to good filling of sections. (I asked the editor of Gleanings about this last matter once, but he evidently thought the idea was too important to be made public.)

In the Review some time ago appeared a most beautiful half-tone, entitled "An Object-Lesson in Comb-Building-Plain, and Old-Style Sections." In that picture the plain sections were at least 100 per cent, better filled than the others; and the use of the word "object-lesson" conveyed the impression that the picture was a representation one of the two displayed. (Though, nominally, sections were compared, yet, as we all know, for reasons I need not enter into, the question is usually one of the kind of separators.) subsequent issue it appeared, from an editorial, that the sections figured had not been produced in the same super, and

not even in the same apiary. Both the picture and the title were, therefore, utterly valueless and misleading. Yet nothing further was said, and the picture was even reproduced and scattered broadcast in a circular, reaching many more than the readers of the Review, with the same misleading title affixed, without even the partial modification which the readers of the Review had had. I do not understand this.

Mr. Scholl also quotes the editor of the Review as expressing his belief that the use of plain sections and fence-separators leads to a more perfect filling of the sections, and that any one who is not prejudiced will admit this upon seeing a crop of honey thus produced. In the first place, a "more perfect filling" is not necessarily a good filling comparatively, hence may practically not count at all. But though the language is indefinite, the intent of the statement was undoubtedly the same as if the term "good filling" had been used. In that case, I deny that any one who is not prejudiced will admit it upon seeing a crop of honey thus produced, and assert on the contrary, that any one who is not prejudiced will not admit it, if the said crop was all produced by one system alone (as the particular crop to which the editor refers appears to have been).

When I visited Mr. J. S. Scott, who is considered one of the best bee-keepers of Utah, he told me he had invested in seven thousand plain sections, with fencesepartors, and used them the previous season, and had gone the whole hog by getting them in the Danzenbaker supers; and was not able to discern any difference in filling between them and the other ordinary sections with ordinary fixtures, the same season in the same apiary. heard lately that a certain Colorado beekeeper, who had written a testimonial which has been flaunted far and wide by the vendors of the new goods, recently said that the old style sections were good enough for him. My information is auhoritative, but as I did not get it directly, I do not feel at liberty to use his name.

In the above I do not impugn Mr. Scholl's motives, whom I know only as the writer of a few articles, but call attention to the unwisdom of imitating the generalizing methods of those who do not wish to present the whole truth. With the same bees and the same conditions, nothing is more certain than that the difference in results by using any of the free-communication separators will be small—too small to be worth turning one's hand over to attain with any expectation of cash results. My whole average of difference between sections having lateral communication, and a number of other arrangements, in a total of 24 supers, was only 381/2 per cent. The whole average of difference between sections having communication at the corners (with a view to lessening the number of passage-ways), and those which did not, was about the same, or less.

DENVER, Colo., Dec. 30, 1900.



OME STORE-COMBS FROM
FOUL BROODY COLONIES
MAY BE USED WITH
SAFETY. BY W. M'EVOY.

Mr. McEvoy, Canada's efficient Inspector of Apiaries, writes me that he receives



a great many letters of inquiry from the United States. He sends me two such letters. One from Wyoming reads. as follows:—

Mr. McEvoy—As you say it is not necessary to disinfect hives that have contained foul brood, that

the brood contracts disease only by being raised in cells that have contained the

disease, or by being fed infected honey, I am led to think it might be safe to give the bees old combs that contain no honey or pollen, and that have never contained brood; or that such combs might be disinfected. What do you think of it?

The other letter is from my own State, and reads as follows:—

Mr. McEvoy—Will you be so kind as to tell me if combs that have been in foul brood colonies can be treated so as to be safe to use? I have a large apiary that became diseased before I was aware that foul brood was in the neighborhood. Can these combs be saved, and can I save my colonies without great expense?

I do not give names nor addresses, as these letters were private; and written to Mr. McEvoy, who is kind enough to send his answer to the Review so that it may benefit others as well as those who wrote to him direct. Mr. McEvoy says:—

All clean, dry combs (like yours) that never had any broad in are perfectly safe to use, and cannot disease any colony of bees; but if you should have any combs on hand that have ever had foul brood matter dried down in them, you can not make such combs safe by disinfecting them. So, be very careful what class of combs you do use; and don't place any dependence whatever in any drug method for treating foul-broody combs; because that disease has never been cured or even checked by the aid of any drug. Where any bee-keeper has a quantity of nice, white combs, that never had any brood in them, he has something very valuable if properly cared for; and to destroy such fine combs because they have been used on foul broody colonies would be a very serious mistake. Every one of these very choice combs can be saved if the bee-keeper will extract the honey out of them, and then give them back to the same colonies they came from, and leave them there until the bees lick them After these nice white clean and dry. combs have been cleaned out perfectly by the bees, they can be used in any apiary. I have had many thousands of such combs saved and used in the Province of Ontario and no trace of the disease ever appeared after these combs were used on the cured colonies.

WOODBURN, Ont., Jan. 14, 1901.





IVE THE CONSUMERS WHAT THEY DEMAND. A DEFENSE OF CHUNK HONEY. BY LOUIS SCHOLL.

So our friend, Mr. E. T. Flanagan, from away up yonder in the State of Illinois. is going to give us Southerners down here in Texas, "some hard knocks on *chunk honey;*" yes, and he goes at it with sleeves rolled up, knocks right and left, knocks hard, and gives many reasons for knocking, too.

Well, now it may seem as though the writer was going to take time and steps to meet our friend, but oh, no! such he would never do; for what would the beekeepers think then, if a youngster scarcely out of his teens, should up to an old gentleman and perhaps do him up badly—or be done up himself: No, no, never.

But then, it does seem that he could keep quiet no longer, especially as Mr. Flanagan has so fiercely attacked one of the writer's best friends, and co-worker, co-inventor, co-experimenter, and what not, Mr. H. H. Hyde, of Hutto, Texas.

Yes, H. H. Hyde, has said a great deal about chunk honey, and he knew what he was saying, too; and maybe he would have his say now, but, attending to his college studies, there is no great fear just now of his entering the ring.

But please let me whisper to you, my friends, up there in the North, that should Mr. Hyde start a war of defense against you, he would not be alone, but be backed by an army of just such very same chunk honey men as he is. Please mind ye that.

If you must kick, why, then, go ahead, only kick fairly, then there will be no harm done.

And while you all are kicking, we will keep on producing the *three* different kinds of honey that our customers demand, viz., section honey, bulk comb, and extracted honey.

I surely believe that friend Hyde is right, when he says that he thinks, "that there should be fine section honey for the wealthy, and bulk comb for the masses." But Mr. Flanagan goes on and wonders what is the matter with good, pure, well-ripened, extracted honey.

Why, oh, my! Mr. Flanagan just you imagine that you were of the masses, and then you want to have comb honey, but, like the masses, you are not wealthy enough to buy that fine section honey of which you speak, but, nevertheless, you want comb honey. Now, I'll go and try to make you buy some of that good, pure and well-ripened extracted. Is this comb honey? And do you want to be fooled that way? Or would you rather demand some of that nice "chunk" or "bulk comb" honey, which is comb honey, and such comb honey that you (or the masses) can afford to buy? Yes, place yourself in the position of the masses, put aside your own thoughts, then study the thing hard, consider it all, and quit kicking, and tell us what ye think.

This would be something quite against the rules as given in our books and journals, and the advice from our biggest lights-to study your market, find out what the consumers demand, and then supply that demand. Now must we go against all this? Must we put aside all that we have learned? Must we go and try to sell to our customers what they do not want; or must we go ahead and supply the masses with bulk comb honey as they do demand? Yes, and I expect we'll go ahead and do it too. Of course, we'll also produce some fine section honey for the wealthy, but, at the same time, give the masses a chance to have comb honey also; or does any body think that if one is not wealthy enough to buy those fine sections, he has no right to have comb honey at all? Or what other reason is there? No, it will give us pleasure to please the wealthy with sections, and the masses with bulk comb, when they want comb honey; and we also have some of that good, pure, well-ripened, extracted, for anybody that prefers extracted honey.

But we do not care to fool the masses with this extracted honey, by trying to sell it to them when they want comb honey just as well as the more wealthy do.

HUNTER, Texas, Jan. 10, 1901.



IN THE CELLAR UPON
THE APPROACH OF
SPRING. BY IRA BARBER.

As the season will soon be at hand for the bees in winter repositories to begin to



arouse themselves and become uneasy, I
wish to tell the
readers of the Review how easy it
is to keep the
bees quiet until
quite late in the
season; or as long
as they ought to
remain in winter quarters.

The only thing necessary is to keep all fresh air from reaching them, by banking thoroughly from the outside, and be sure that it is kept there air tight. Straw will not answer; it is but little better than nothing at all. Almost any material used will shrink away when frozen, and leave a space of half an inch or so next the wall. If this is not attended to there will be just as free circulation of air as though the cellar was not banked at all.

I have had bee-keepers come to me the first of March and ask me if my bees were not getting very uneasy; and I would say: "No, they are very quiet for this time of year." Then I would say to them: "Your bees must be getting fresh air from the outside." They would say: "That can't be; for my cellar is well banked all around, and dark as a pocket, and I want you to come to my place and discover, if you can, what is the trouble." I drop all business at once. The first thing I do is to examine the banking, and call attention to its condition. We find the packing has settled, and sprung away from the wall, in places, three or four inches. The banking is repaired, and, in a few days the report is that the bees are as quiet as in mid-winter.

Bees are keen-scented; and the first warm days that come the first of March, or before, especially if there is no snow on the ground, will be sure to set them buzzing if they get a sniff from the outside; while, if all fresh air is kept from them, the change in the cellar is so gradual that they do not notice it. An airy cellar is quite certain to be a cold one; too cool for bees in cold weather.

My cellar, years ago, was too airy, and I had all the trouble that I have described. I had not yet learned to bank it up, and I had to open the hatchway door nights to quiet down the bees, and cool the cellar, but the next day found them just as uneasy and ready for a frolic; and when order was restored, and all became quiet, and the roll called, thousands upon thousands would lie dead on the floor after one of those night frolics.

I am well aware that many of our best bee-keepers practice opening their cellars nights, and I would like to have all those that do, try the plan that I have described and report through the Review if they do not find it a success.

Have no fears of smothering your bees, nor of their getting too warm, for they will stand far more heat than cold.

Ventilation is not necessary, unless large numbers of colonies are placed in a small cellar so as to take up all the space.

The cellar for bees to winter in perfectly should be thoroughly deodorized with salt. There is nothing that will do the work so perfectly and leave nothing be-

hind that is unhealthful. When the work is done the cellar is as sweet as when first built; and there is another great point gained, for the cellar bottom is so saturated with salt, especially if it is a damp one, that all dead bees that fall upon the cellar bottom, become so pickled with salt that they do not decompose and cause the atmosphere to become foul, as it otherwise would. To deodorize the cellar, begin when you clean it out, as soon as the bees are out, and use enough salt to cover it well over to the depth of ¼ inch, or more, and when that has dissolved give it another coating as often as the salt disappears, for three or four times all through the summer, or until you are sure that the cellar is perfectly sweet. The expense is a small matter for the grand results obtained; as one or two bags of salt will be all that is required. If cellar floors are made of boards or plank the salt will keep it sound a life time.

The cellar should be kept closed enough to dissolve the salt, but open enough to allow the odors to escape.

DEKALB JUNCTION, N. Y., Jan. 23, 1901.



CHAFF HIVES are peculiarly advantageous in producing comb honey in Northern Michigan, as, in that latitude, the cool nights often drive the bees from the supers when the walls of the latter are simply a single thickness of thin lumber.

THE MAN WHO READS is the man who succeeds. As an illustration, let me quote one thing that Mr. W. L. Coggshall said to me while there. As is known, he has had many young men in his employ, and he told me that the young man who did not read never amounted to much in his employ.

SPRAYING fruit trees while in bloom has been the subject of experiment at the experiment station at Ithaca, N. Y., and such trees produced only about one-half as much fruit as those sprayed after the bloom had fallen.

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Mosquiro-netting is used by R. H. Smith of Ontario to cover a load of hives of bees when moving them for fall pasture. When thus protected, no harm can be done by any bees that may escape from the hives, as they are still shut in.

THE BADGES at the Michigan State convention were neat and novel. The ribbon from which they were made was composed of three equal, parallel strips of red, white and blue, the lettering of gilt, but the crowning glory was a large button at the top graced with a portrait of its genial, popular president—the Hon. Geo. E. Hilton.

RANGER AND STREET

PACKING COLONIES for winter, by putting four in one box, in a square, compact form, aids in keeping the bees warm. Mr. R. H. Smith reported at the Ontario convention that with bees so packed, warmth would be noticed by thrusting the hand down between the hives. The bees when so packed, were found clustered at the corners of the hives next to the center.

KKKKKKKK YAY

FREEING COMBS from bees is one of the most laborious parts of the work in producing extracted honey. At the Ontario convention Mr. J. B. Hall told how Mr. S. T. Pettit managed. The bees were smoked, the combs taken out quickly and set down promiscuously around the hives, empty combs put in the super, and the bees shaken or brushed from the combs. If the brushing were done when the combs were first removed there would be some stinging, but by thus allowing the combs to stand a minute or two the bees become as docile as so many flies. SPRINGS were recommended, at the Ontario convention, by Mr. W. L. Coggshall, for use in moving bees. They are always ready, and are convenient, which is not the case with hay or straw placed upon a hayrack. The latter is all right, but to get the best results, another rack is needed top of the straw, and this is an added expense. Have heavy springs, and load them well, and all is well.

KKKKKKK PAPA

PAYING MANIPULATIONS are the ones to make. There are many things that can be done with bees, but it is'nt so much what can be done, as what can be done profitably. For instance, at the Ontario convention, Mr. J. B. Hall opposed the "fussing" with weak colonies in the spring. They may be saved, but they might pull through if left alone. Besides, if the bees perish, the hives and combs are left.

KKKK NEWENE

MOVING BEES to take advantage of pasture not to be obtained at home has has been practiced for about 12 years by Mr. C. W. Post of Trenton, Ontario. Last year he secured about \$1800 worth of honey by moving his bees, while if left at home he would have obtained no honey. The clover at home was dried up. He is nicely located where he can move in different directions on the railroads. Much of the honey secured by moving the bees is buckwheat honey.

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BEE MOTHS are not considered as of any benefit to bee-keeping, but it is possible there may be instances in which they are not wholly an unmixed evil. At the Ontario convention Mr. Hershiser asked if there was not danger of bees getting the germs of foul brood from beetrees in which the bees had perished from the disease, or if stray swarms might not take possession of such trees and thus again develop the disease, but Mr. Hall suggested that the bee moths' larvae would soon destroy the combs if they were left unprotected by bees,

Conventions, it would seem, could not furnish much information that would be new to a man with the experience and reading habits of a man like W. L. Coggshall, yet he asserts that he can't afford to miss one—besides, as he says, "It spurs us on."

PROPERTY

INTRODUCING QUEENS without removing the old queen may be successful one time in two, if we use chloroform or to-bacco smoke. At least, this is the report of Mr. C. E. Morris, of Coon Rapids, Iowa. He was sick and not able to hunt up the old queens, so he gave six colonies a good dose of chloroform, and six more a good dose of tobacco smoke, and then let the new queens run in. Of the twelve thus released, five were accepted.

NAMED AND PARTY.

CLEANING up the combs at the end of the extracting season, by allowing the bees to have access to them, is becoming an almost universal practice. Once we would have supposed that it would have nearly spoiled the apiary by the robbing it would arouse—now we know that it will do nothing of the kind. Over at the Ontario convention many told how, when the season was over, they allowed the bees to clean up the combs. There was a "loud time" while the work lasted, but, when the honey was all gone the bees quieted down and there was no robbing.

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THE AMERICAN BEE-KEEPER is going ahead by leaps and bounds. I don't know whether the other bee-keeping editors have noticed it or not, but I have, to the extent that I feel that I must buckle on my spurs or be left behind. Of late this journal has been giving, occasionally, a very fine frontispiece. Bro. Hill has found some one who is an excellent pressman. The frontispiece in the last issue shows that old warhorse, G.M.Doolittle, from his latest and best photograph. Considerable attention is being paid to other illustrations aside from frontispieces, and

much pains is taken to secure good correspondents. When we consider that Brother Hill is doing his work at arm's length, he in Florida, and the journal in New York, we can do little else than wonder at the results.

EREKKEKEKE

WISCONSIN, STATE BEE-KEEPERS'
ASSOCIATION.

The Wisconsin bee-keepers will hold their 17th annual convention, Feb. 5th and 6th, in the State Capitol at Madison. Their programme is as follows:—

N. E. France Mrs. Evens and Mrs. Towle will each present papers on subjects of their own selection.

E. R. Root, editor of Gleanings in Bee Culture will be present, and on the evening of the 5th will present his stereopticon views, accompanying them with explanatory remarks, thus giving the audience something that is entertaining as Geo. W. York of well as instructive. the American Bee Journal, and myself, expect to be present. I shall bring my camera, as usus1. I now have an arrangement whereby I can stand in the group at the time that it is being photographed, and open and close the shutter by means of a long rubber tube and a bulb. will enable me to take a picture having the three editors, Root, York and myself, side by side in the group. It may be a long time ere we three will meet again in this pleasant manner.

THE EFFECT OF SLOW COOLING UPON THE COLOR OF BEESWAX.

The American Bee Journal admits that the slow cooling of wax simply allows the dirt to settle, and that is the only way that slow cooling can have any effect upon the color. But it still clings to the idea that the dark color of wax com from its impurities. Here is where our our old friend is making its mistake. The color is in the wax itself. Dark wax will remain dark, no matter how slowly it is cooled; vellow wax will be yellow although so full of dirt that the particles can be seen. Any one who cares enough about this can easily satisfy himself. Let him get a cake of dark, black wax, melt it and keep it in a vessel surrounded by sawdust, so as to confine the heat, and cause it to cool very slowly. When cool it may have a cleaner look, the dirt having settled to the bottom, but it will still be dark. If you doubt it, just try it. Next, take a cake of the brightest yellow wax, melt it, and stir into it a lot of the refuse, or slumgum, or dirt, scraped from the bottoms of other cakes of wax, mix these in well, then cool it just as quickly as you possibly can. The wax will still be yellow, but full of foreign matter. Again I say, if you doubt this, try the experiment.

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ADVERTISING.

Occasionally I feel impelled to say a few words on advertising. They may not be of particular interest to the general reader, but he should remember that, if it were not for the advertisers, he would be obliged to pay double price for his reading matter; hence it is only fair that advertisers should occasionally receive some consideration.

If there is any one thing, aside from bee-keeping, that I have studied, it is advertising. Advertising is simply telling people what you have to sell; but the way in which it is told makes a wonderful difference upon the results.

The foundation of all good advertising, is a good article to advertise. An inferior article may be boomed by means of good advertising, but eventually there will come a relapse. If your goods don't possess some superiority, if you can offer purchasers no advantages, it is folly to advertise. You must give better goods,

over your business and see in what particular you are ahead of everybody else, then make the most of that point. Hammer away at it, day after day, week after week, month after month, year after year. Beat it into the heads of the public that your goods possess this advantage over First be certain that your all others. goods really possess the advantage claimed, otherwise the advertising will prove a boomerang. Be strictly honest. from morality, looked at from the most selfish point of view, honesty is the best policy. Don't exaggerate in your advertising—this, too, will prove a boomerang.

Change your advertisement often. People seldom read the same story, or the same advertisement, more than once. When they see that it is the same old story, they pass it by. When they find a fresh story each issue, they fall into the habit of looking to see what will be said next. I said take one point, that of the greatest speriority, and emphasize it; but do it differently each issue. Notice how I have advertised queens of the Superior Stock. I have had many different advertisements, but they have all emphasized that one point—superiority.

Lay aside generalities. Don't say that your sections are the "whitest, best made and cheapest." They all say that, and it has been said so much that it doesn't mean anything. Say it something like this: "We own a sawmill, and when we come across a log of white second-growth basswood we saw it into planks for sec-This is done in the winter when tions. These planks are the timber is frozen. cut into bolts of the proper length, and piled up, openly, under slieds to season. This gives us absolutely white, well seasoned timber at a low price. Owning a mill, power for manufacturing sections costs us almost nothing. Being sawed from plank instead of inch lumber, we can make the sections of good thickness. The V grooves in our sections have a round instead of a sharp corner, and the sides of the grooves are a slight, inward curve, all of which greatly tends to prevent breakage. Our sections are sandpapered, which reduces them to a uniform thickness and gives them a smooth, polished surface. These advantages enable us to sell our sections for only — per thousand."

If you were buying sections, don't you think such an advertisement would be more likely to induce you to buy than would one that simply said: "Best goods at lowest prices."

In writing an advertisement, try and look at the matter from the standpoint of an outsider. It you were a buyer, what would influence you?

Put some thought and work into your advertisements. Make them better than other similar advertisements. A man of ordinary height is not very noticeable in a crowd. A man two or three inches above the ordinary height is very noticeable. Make your advertising just a little higher than the ordinary. After you have put in enough money and thought to get out an ordinary advertisement, then put in enough more to raise it above all of the others. It is in this extra superiority that lies the profit.

As I have already said, I have made a study of advertising, I have plenty of type of different styles, borders, ornaments, and the like, and I stand ready and willing to assist any advertiser who would care to have me help him in the preparation of his advertising. Send me your circular or price list, write such an advertisement as you think would be best, bring out the strongest point in favor of your goods, send all to me, and I'll go to work and get up just such an advertisement as I would get up for myself, put it in type, send you a proof, and tell you how much it will cost to have it inserted in the Review. All this will not cost you one cent; and you will be under no obligation whatever to put the advertisement in the Review unless you see fit to do so. Don't think that I am actuated wholly from motives of generosity. I well know that if I can help you to make your advertising in the Review profitable,

it will be continued to my profit. Let us work together to our mutual benefit.

It is none too soon now to begin a dvertising for the trade of the coming season. A man usually makes up his mind where he will buy, some little time in advance of his purchase—assist him in making that decision.

A BIG FIRE, on New Year's day, visited the block in which is published the American Bee Journal. Fortunately, the issue for mailing on Jan. 2nd was still in the hands of the printer, and this and the forms were saved. The enterprise of Chicagoans is shown by the fact that no one would have known of the disaster from the time of the receipt of the Bee Journal, nor from the appearance of its contents The loss in the Bee Journal office was not so much from fire as from the floods of water that came down through from the floors above, where was raging one of the fiercest fires that the fire companies of Chicago have had to fight in a long time. The building was seven stories high, and about twenty engines were throwing water on the fire in the top of the building, and practically all of the water came down through the floor occupied by the Bee Journal. The fire was finally subdued, and Bro. York has probably got things all slicked up by this time.

MAL'S KALTATA

THE BEE-DRESS worn by David Coggshall affords the most complete protection of any thing of the kind I have seen. First, there is a stout, wide-rimmed hat. Then comes the veil of some stout, open material. I don't know as I can give the name of it, milliners use it in lining hats. The mesh is hexagonal, and the material strong. This veil is held in place around the hat crown by means of a rubber cord. In front of the face a piece of wire cloth is set in. This stays out away from the face, is not easily torn, and does not greatly obstruct the vision. The veil is not tucked inside the collar, but extends

down to the shoulder where it is joined to the top of a short blouse that reaches down to the waist where it is held closely to the person by a string. The sleeves to the blouse extend down and cover the backs of the hands, there being some openings for the fingers to slip through. When a man is protected by such an armor it is almost impossible for the bees to get in their work. The fingers are really the only parts that are exposed. Suppose that the bees' feelings are a little "harried up," Mr. Coggshall's are not.

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THE MICHIGAN CONVENTION recently held at Traverse City was the most successful of any that Michigan bee-keepers have held in several years. In the first place, northern Michigan is a good beecountry, and has a large number of beekeepers; next, the meeting was well advertised. Notices were published in the bee-journals, and in the local papers of that region. Not only this, but its enterprising president, Geo. E. Hilton, sent out 400 personal invitations to bee-keepers in that region. This convention is one of those that sails in without any set program, or any essays. With such a man in the chair as its present president, this course is all right. I used to think that Dr Miller was the best president that I ever knew for keeping a convention stirred up, and I don't know as I am yet ready to give up that belief, but Bro. Hilton is certainly a close second. Not only is he a good presiding officer, but he has a happy faculty of summing up a discussion very fairly, and in a few words; and the convention acted wisely in keeping him in the chair another year, also in choosing, for the next place of meeting, another northern Michigan town-Petoskey.

WELL HUNDER

THE INFLUENCE OF LOCALITY.

My Eastern trip did me a lot of good. Among other things it impressed upon me most forcibly the great difference in localities. In some localities, when I attempted to tell bee-keepers how I started the bees to working early in the season by putting on supers of unfinished sections left from the previous season, they would have none of it. There was a possibility of honey from mustard (we have no mustard) being mixed with the early flow of clover; or the bees might carry up from the brood-nest some of the buckwheat honey stored the previous autumn. A better plan was to put on extracting supers at first. This started the bees to storing honey in the supers, and, as soon as the danger from dark honey was past, the extracting supers were given to the weaker colonies that were to be run for extracted honey, and sections placed on the colonies from which the extracting supers had been removed.

In the buckwheat region, the system that we employ here in the West for getting the white honey in the sections would be a failure, as the white honey seldom does more than put the bees in good trim for the buckwheat.

Carniolan bees are great breeders; and at the end of our own white honey harvest here in the West have little to show except a great lot of bees—the honey having been used up in their production. Where the principal flow comes in the fall, after the breeding impulse has largely subsided; they are all right, as they bring to the harvest colonies that are overflowing with bees. This explains why Mr. C. W. Post of Canada is so partial to Carniolans—his surplus comes from buckwheat.

Be charitable regarding the views of the man whose locality is different from yours.

Since the above was put in type I have attended the Michigan State convention in Northern Michigan, at Traverse City, and here I found that the best source of surplus for many bee-keepers was that of the wild, red raspberry, which blossoms early in the season, and the all-absorbing question with these bee-keepers was, "how shall we have populous colonies early, that we may get a good surplus from raspberry?"

Perhaps some of my readers will think that a populous colony early in the season will be an advantage, let the harvest come when it may. At this convention it was very clearly shown that, with the growth of a colony in numbers, as the season advances, there is a certain stage in this growth when the age of the field bees and their number compared with that of the nurses, when the period of egg-laying was at the right stage, when the conditions of the colony as a whole were such that it can take the best advantage of the honey flow. If this condition is brought about too early it is as disastrous as to have it arrive too late. colony that is very populous early in the season, a colony that suits the raspberry honey man, has passed its prime when basswood comes on. The man who produces basswood honey perfers a colony of moderate strength early in the season, one that will gradually build up and be in full bloom, so to speak, when the basswood is in a similar condition.

It is all right to read and consider the experience of others, but each man must thoroughly understand the conditions of his locality, and govern himself accordingly, before he can hope for success.

NEWSTANCE NAMED

THE NEED OF UNIFORMITY IN THE METHODS OF MEASURING BEES' TONGUES.

While up at the Michigan convention I had a talk with Mr. John M. Rankin of the Michigan Agricultural College in regard to the methods of measuring bees' tongues. Of course, all measurements begin at the tip of the tongue, and the only difference in completing the operation is in regard to the point to which the measurements shall be carried. Mr. Root measures what he calls the "reach" of the tongue, that is, from the tongue-tip to the mouth part. Mr. Rankin contends that the only proper and exact method is to measure the whole length of the tongue; not only the part that extends

beyond the mandibles, but from the very base to the tip. This matter was brought still more to my notice by the receipt of an advertisement from my friend Wood of Lansing, in which there appears a report of some measurements made by Prof. Gillette of the Colorado Agricultural College. Here is the report as made by the Professor. It reads as follows:—

FT. COLLINS, COLO. NOV. 9 1900. MR.A. D. D. WOOD, Lansing, Mich.

Dear Mr. Wood:—Your letter and the bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they ran very uniformly as follows:

Whole reach of "tongue," from base of submentum to tip of ligula, 26-100 of an inch; ligula alone, to the dark mentum, 17-100 of an inch.

There were nine specimens and all their tongues were measured.

Very truly, C. P. Gillette.

It occurred to me that now would be a good time to bring up this matter and try and have the friends agree upon some uniformity in this matter. Accordingly I wrote to Mr. Root and asked him if he would give his views on the matter, at the same time telling him what were the views of Mr. Rankin, and sending him the report of Professor Gillette. Here is Mr. Root's reply:—

Regarding the measurement of bees' tongues, everything depends on how the measurement is made. My measurements have, as you say, taken in only the tonguereach of a bee; and this tonguereach begins from the end of the tongue proper, and ends at the point from which it extends from the mouth, that is, to say, from the ends of the mandibles. other words, the measurements that we give in hundredths of an inch of the various tongues of bees take in only the available reach into a flower-tube. it seems to me, although I may be wrong, is the correct way of taking the measurement. For instance, we know that corolla-tubes of red clover vary all the way from 1/8 to 5/8 of an inch in depth; that is, to say, putting the matter in hundredths of an inch, 12½ hundredths to 37½ hundredths. Now, then, if we were to measure the entire length of a bees' tongue after it had been dissected from the bee, we should not know then whether it would reach down into the corolla-tubes 25-100 deep or not, we could not determine how far the mouth parts of the bee would extend over the tongue. In giving the actual tongue-reach itself I did so in order that we might get a proper comparison of the available tongue-reach for red clover.

Referring to the report of Prof. C. P. Gillette, I do not know that I understand exactly what he means by the base of sub-meutum, and what point he means by dark mentum; but, if I understand him, his measurement of 26-100 of the Wood bees means the whole tonguelength; and his measurement of 17-100 takes in only the tongue-reach, or that part that I have been measuring. Our longest measurements for a whole cage of bees from the point where the tongue sticks out of the mouth to the end of the tongue is 21-100. By the same proportion, if I figure correctly, the entire length of the tongue would then be 31-100.

I must confess this question is a little confusing, either way we take it. If we measure the entire tongue, detached from the bee, then we can not tell how far that bee can reach into a flower-tube. If we measure the actual reach, as we have done, then some will not understand whether we are measuring from the end of the mandibles, or jaws, or whether we are measuring from somewhere else.

So, for purposes of comparison, it is hard to say who has got the longest-tongued bees. I think that perhaps Prof. Gillette, ourselves, and Mr. Rankin had better take a printed diagram and agree on some points of measurements which will be uniform for all of us.

E. R. Root.

MEDINA, Ohio, Jan. 11, 1901.

X PAPAPAPAPAPAPA

MICHIGAN'S NEEDED FOUL BROOD LAW.

Once more have the bee-keepers of Michigan, in convention assembled, appointed a committee to labor for the passage of a needed foul brood law; a law that will empower the governor to appoint an inspector who has been recommended by the State Bee-Keepers' Association, and who will have authority to destroy foul broody colonies when the owner can not or will not properly treat them.

There is also to be remuneration for colonies that are destroyed, the same as the owners of cattle diseased with tuberculosis are reimbursed for their property when it is destroyed for the general good. A resolution was also unanimously carried recommending the passing of the law, and this resolution will be read before both houses of the legislature. The convention did another wise thing; it sent out and invited the member-elect for that district to visit the meeting and hear the matter discussed, which he did, and we had the satisfaction of securing the assurance that at least one member will vote in the right direction.

There was an attempt, two years ago, to pass a similar law, but it failed, principally because of the apathy of bee-keepers. I am informed that only twenty letters were received by members asking them to vote for the measure. The simple introduction of a bill will not secure its passage; the members must be urged to vote for it, and good reasons must be given showing why the measure is needed. It must be remembered that the majority of people know very little about bees or bee-keeping, and the members of the legislature must have explained to them the contagious character of foul brood, how it spreads from hive to hive, and from apiary to apiary, and from county to. county, and that it is impossible to prevent this spreading until there is some one in authority to compel careless, ignorant or wilful bee-keeping to rid their apiaries of the disease.

Members should also have their attention called to the value of the bees to the fruit grower and horticulturist by their work in fertilizing the blossoms. The loss to the country from this source would be even greater than the loss to bee-keepers. If bee-keepers will only wake up and do their duty in this matter, the bill can be passed. There are hundreds of bee-keepers in this State, and yet only twenty of them had sufficient interest in this matter to write to their representative and ask him to vote for this measure,

giving the reasons why the law is needed. If there is no foul brood in your apiary, it may be in your neighborhood, nearer than you think. You little know how soon you may need help.

HOW COGGSHALL EXTRACTS.

He uses a queen excluder—can't be bothered with brood. Extracting combs same size as in the brood-nest. Does not tier up the supers. Begins extracting as soon as the bees begin capping. Has an enameled cloth over the frames. Turns back one corner. Puffs in the smoke and flops the cloth up and down. drives the smoke down among the bees and makes them hustle for the lower story. He has an upper story of extracting combs sitting near by. He takes out one or two of the empty combs and sets them to one side. A comb of honey is removed and the bees shaken and brushed off into the upper story-not upon the ground. By this plan not so many bees take wing and create a commotion that attracts robbers. As soon as one or two combs are removed from the super, an empty comb is placed in the super as often as a full one is removed. As the full comb is freed from bees and set into the hive containing the empty combs, the hands bring back and drop into place in the super an empty comb. The apiaries are located in woods, or out of the way places, where cross bees cannot annoy or attack any one except those who are doing the work, and they are most thoroughly protected by suitable clothing and veils, hence they are able to work rapidly, regardless of whether their methods are particularly pleasing or not to the bees.

The honey is carried to the honey house, uncapped, and extracted. In uncapping a deep cut is made. This can be done more quickly than to try to uncap by simply slicing off the capping, and the honey is not lost, as it drains from the cappings. Besides this, as the bees again lengthen out the cells, they use up the wax that they involuntarily secrete, and

which would be lost were they not given some way in which to utilize it. In producing comb honey there is abundant opportunity for using all wax that is secreted; but when drawn combs are used, as in extracted honey production, and, particularly, when but little capping of the honey is allowed, there is no opportunity for using the wax that is continually being secreted during the working season.

A reversible extractor is not used, but the combs are reversed by transposing the combs. That is, the comb on the back side of the machine is brought to the front side, and the front comb carried to the back side simultaneously; the left hand changing one comb and the right hand the other. The honey is at once drawn off into spruce kegs holding 210 pounds, where it is allowed to remain and candy, when it is in fine shape for shipment.

WAKE UP, BEE-KEEPERS, TO THE CHANCED CONDITIONS.

I have many times advised my readers to keep more bees. We are often asked what will mix the most successfully with bee-keeping, and I have replied, and still say, "a few more bees" In my eastern trip I met quite a number of men who are making money keeping bees—not simply making a living, but laying up money. All of these men, with no exception, keep bees in large numbers, scattering them around the country—perhaps 100 colonies in a place. It isn't profitable to put only a few in a place—there must be enough in each yard to make a day's work when the apiary is visited.

Mr. H. L. McLallen, a former pupil of Mr. W. L. Coggshail, but now the owner of several hundred colonies, made a very bright remark at the Romulus institute. He said: "We can't produce so much honey per colony as we did years ago, but we can make more money. The reason is that we can keep more bees with less labor." The reason of the lessened yield per colony is the cutting off of natural resources, such as clover and basswood,

but the improved methods that enable us to manage a greater number of colonies, the short cuts, if we will only recognize and practice them, really give us advantages over our predecessors. It is in the discovery and practice of short cuts that we must look for our financial salvation. A great many processes that may be employed at a profit in a home-apiary, are

tally out of place in an out-apiary. The swarming problem, for instance, must be solved by a different process in an outvard. The honey extractor is the most satisfactory solution. Give the bees plenty of empty combs in which to store honey, and swarming is practically ended. Years ago extracted honey was of slow sile at a low price, but its use by bakers and other manufacturers has placed the demand upon a firm basis, and, at present, I know of no more hopeful field for the apiarist than the production of extracted Keep a lot of honey on a large scale. bees, scatter them around the country, and don't use up all of your profits in useless manipulations. I wish to see bee-keepers prosperous, and I believe I have never given them better advice than I am giving them now. Let me repeat it: Keep hundreds of colonies, scatter them around the country, 100 in a place. produce extracted honey, study short cuts as though your life depended upon it. Personally, let me ask you to give this matter your careful, serious thought. Not only this, but write to me on this subject. Especially would I like to hear from men who have had experience along Men who have made but these lines. an indifferent success with only one apiary, but have made money with several apiaries, or those who have tried running several apiaries and failed, if there are any such, could tell an interesting and instructive story. Let me hear from you. Those who have had experience with both few and many bees are especially invited to write. If I have drawn any incorrect conclusions, or omitted any important factors, I shall be glad to have these defects pointed out.

the best article on this subject, received before March 1st, I will pay \$5.00. For any article that I think well enough of to use, but to which the first prize is not awarded, I will send the writer the Review one year and a queen of the Superior Stock. The establishing and managing of ont-apiaries might, very properly, form the latter part of the article.

BLACK BROOD.

The bee-keepers' institute held at Johnstown, N. Y. was in what might be called the heart of the black brood district; and a large part of the discussion was in regard to the origin, dissemination, symptoms and treatment of this fell destroyer. actly how the pestilence spreads from hive to hive, from apiary to apiary, is yet something of a mystery. That honey may be the vehicle of transmission, the same as it is in the old fashioned foul brood, there is no doubt, but that it should make its appearance in isolated situations, where the bees could, apparently, have access to no contaminated honey, has led some to believe that there must be some other means whereby the disease can be communicated. The theory has been advanced that the spores may be carried by the wind. Another theory is that bees from an infected colony may have spores attached to their bodies when they leave the hive, that these spores become detached in visiting blossoms, and that bees from healthy colonies may, in visiting these blossoms, collect and carry home upon their bodies these seeds of disease. However unreasonable some of these views may appear, the fact remains that some of the outbreaks of this disease have been very mysterious, as regards their origin.

In its early stages the disease greatly resembles pickled brood; then there comes the yellow spot on the larvæ, followed by a breaking down and a dark or black color, accompanied by a sour odor. One distinguishing feature between black brood and foul brood is that the former

shows but very little of the stringiness or ropiness of the latter.

The treatment is identical with that for foul brood, viz., that of shaking off the bees into a new hive, and allowing them to build new combs. The old combs are burned or melted up into wax. great difficulty is that colonies so treated don't always stay cured. The first batch of brood is usually entirely healthy; the second batch is of the pickled brood style; with the third hatching comes back the old black enemy. Some take so gloomy a view as to believe that it will disappear only with a lack of material upon which to feed. That is, that the scarcity will again develop the plague; that nothing short of a complete renewal of the combs can ever eradicate the disease.

One very practical point was brought out, one that I heard mentioned frequently in my travels, and that is that Italians are much less susceptible to the disease than are the blacks or hybrids.

ALAN ARAPIANA

A VISIT TO THE COGSHALLS.

After attending the Ontario convention at Niagara Falls, and visiting the Pan American Exposition grounds, I took a run down to West Groton, N. Y., the



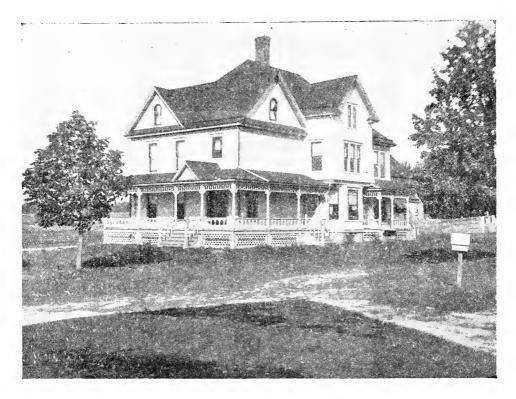
Home of W. L. Coggshall. West Groton, New York.

disease will continue its ravages until no bees are left in this region; when, after a lapse of time, bee-keeping may again be engaged in without danger of loss from this source. Others are more hopeful, and assert that with the return of a good season the disease will disappear. While admitting that a good honey flow will cause it to disappear, others say that such relief is only temporary; that the old infected honey is simply covered up, and, when uncovered and used in a future time of

home of W. L. and D. H. Coggshall, where I put in two solid days of visiting with a man whose number of colonies is rapidly approaching the 2,000 mark. Never before did this question of locality impress me so forcibly. The bee-keepers here very appropriately call themselves "buckwheaters." If it were not for the buckwheat that whitens the hills in August, bees could not be profitably kept in this region; as it is, there is a scrambling to plant an apiary in every unoccupied

spot. When I asked Mr. Coggshall why he planted some of his apiaries so far from home, he said because there was no unoccupied territory nearer home. "How did it happen," said I, "that this territory near you came to be so fully occupied before you were ready to occupy it?" "Because I didn't keep my mouth shut," was the terse reply. White clover and basswood, from which so many of us se-

colony is moved to a new location, the hive containing the brood set in its place, and a ripe queen cell given it. This method is typical of Coggshall—no time wasted in hunting up queens. If by chance, however, the queen is found in the colony removed, she is given to the newly formed colony, and the cell given to the removed colony. The apiary is gone over as often as necessary to secure



Home of D. H. Coggshall, West Groton, New York.

cure our surplus, do but little more here than put the bees in good trim for the buckwheat. It will be seen that there is abundant time in which even weak colonies may build up for the harvest. The Coggshalls make their increase in June, which is before the opening of the buckwheat. The plan is as follows: A hive is opened, if it can spare a comb of brood, one is taken; the bees being shaken off. Two combs are taken if they can be spared. If the next colony lacks in brood, a comb is given it. In other words, a sort of equalization is carried on; and, as soon as a sufficient number of ombs of brood accumulates, a populous the proper increase, and to practically prevent swarming. Very little swarming takes place during the buckwheat bloom.

Mr. Coggshall has a honey-house, extractor, smokers, tools, etc, at each apiary, thus avoiding the necessity of using a team to transport men and tools to each yard. This allows the men to go to and from the yards on bicycles. Instead of bringing home the honey each night, it is stored in the honey house at the yard where it is extracted. Sometimes it is left until it can be brought in on sleighs. The day that I came away a team was going to the "Pine Woods" apiary to bring in a ton of honey.

Mr. Coggshall rather laughed at the idea of taking a large gang of hands to a yard. Two hands, or three, at the most, are all that he needed. I asked if one man could get the combs out of the hives, the bees off from them, and the combs into the honey-house as fast as one man could extract them. With that peculiar smile of his, he said: "The man out of doors can bury up the fellow inside, if he has to uncap the honey. If the honey is capped, three makes a good crew." Of course, this work is done with very few motions.

As editor of a bee-journal, there is considerable pleasure in showing pictures of beautiful, comfortable homes that have been built as the result of keeping bees. So many bee-keepers do not succeed, or, only half succeed, that it is very satisfactory to be able to show such conclusive proof of success. There is one point to which I wish to call special attention, and that is, that the Coggshalls keep bees in large numbers. I know of no man who has made a brilliant financial success of bee-keeping who has not kept large numbers of bees. Over at the Ontario convention I had a long talk with Mr. C. W. Post, one of Canada's most successful beekeepers, one who keeps a large number of colonies, and he told me of the many years that he had made a living and supported his family from bee-keeping alone. He did not fear poor seasons. Supposing that they did come, he made enough in good seasons to carry him over the poor seasons, and allow him to lay up money into the bargain. It is the same with the Coggshalls. Poor seasons come to them; but when a good season comes they have bees enough, and manage them so well, that they secure large quantities of honey at comparatively a very small expense. Plenty of bees so managed that the profits are not used up in manipulations, explain the Coggshall success. To illustrate, allow me to quote a little piece of the conversation that took place between myself and D. H. Coggshall. I remarked that, to me, it seemed that the secret of their success was "lots of bees, and the profits not used up in useless manipulations." Mr. Coggshall said:

"That's it exactly. At my south yard last year we had 80 colonies and secured 10,000 pounds of honey; now how many days' work-do you suppose we put in, unpacking in the spring, extracting and packing in the fall?"

Knowing something of their short-cut methods I said "Fifteen days."

"Fourteen days was all the work done in that yard during the year, and we got \$500 worth of honey."

Both of the Coggshalls own good farms, but W. L. (LeMar, as they call him) told me that it would have been money in his pocket if he had given away the farm years ago—but Mrs. Coggshall thinks a farm is a good place upon which to bring up boys, and I believe Mr. Coggshall does not dispute her.

Long will linger in my memory the remembrance of the few pleasant hours passed under the hospitable roofs of the Coggshalls.

EXTRACTED.

CORKING HONEY BOTTLES.

How to Soften the Corks so as to Make them go in Easily.

The mouths of the bottles used for bottling honey often vary in size, while the corks have the same fault. As a rule, the corks are plenty large enough. In order to get them in I have often had to take a hammer and drive them in, or else go to the bother of whittling them down with a knife. Walter S. Pouder tells the readers of Gleanings how all this may be avoided. He says:—

I have often been asked how to simplify the insertion of corks. I take a pail containing water to the depth of half an inch, and fill the pail with corks and place on a lid. Let the water boil a few minutes, and they are ready for use. Do not

use the ones that are water-soaked, but use the steamed ones. You will find them soft and pliable, and none will break. The water-soaked ones can be used at another time.

BOTTLING HONEY.

Reasons for Heating the Honey and then Bottling; How Hot should the Honey be made? Style of Glass Packages to be Used. Mixing Various Honeys.

A great deal of the bottling of honey is improperly done. It is simply "bottled," no matter how the work is done. A few bee-keepers in this country have gone at the matter in a systematic, scientific manner, and Gleanings has been enterprising and thoughtful enough to get some of them to tell exactly how they do their work. There is not room in the Review to copy all of these excellent articles, but the one that I give below, that of Mr. Chalon Fowls, of Oberlin, Ohio, is, I believe, as good as any that have appeared. Mr. Fowls says:—

In giving my method of bottling honey I do not claim that it is the best one. Indeed, it is quite likely some one else may have some better plan; and if so I hope he will bring it out at this time so that we can all learn how to do the work in the best and most expeditious way. The plan given by Mr. Pouder, on page 801, may be better than mine in some respects; but, not having tried it, I could not say, Though he does not say so, I infer he would run his whole crop into the bottles before it has candied, and then liquefy and seal only as fast as needed for his With me this would make too much work in the summer, when other work is pressing. Otherwise, if the honey is left in bulk until it is candied it would look as though it would have to be heated twice to finish the job. I should suppose, too. that it would be difficult to put in just the right amount when cold so that the bottles would be full when heated, and not too full so as to run over. Perhaps Mr. Pouder will explain those points more fully in another article, so I will now proceed to give you my own method.

In the first place, I aim to put up none but first-class honey, weighing not less

than 12 pounds to the gallon, and the same kind year after year. When I have to buy to supplement my own crop in a poor year like this, I get the same kind, as nearly as I can, so consumers will get the same flavor they are accustomed to. For instance, this year, having bought some mixed clever and basswood from Wisconsin, I am mixing in clover honey from Michigan, as I find the Wisconsin honey has not as large a proportion of clover in it as is natural to my locality. Instead of putting up a large quantity at once, as some do, I put up only as much as needed for my trade. I use six-gallon lard-cans as storage-cans for my own crop; and when buying I get. it in five-gallon square cans when possi-For liquefying they are placed in cans large enough to admit of having three or four inches of water underneath and surrounding the honey. The liquefying-tanks had better be made of copper, as tin soon rusts out; and if the tank gets rusty the water will cause the honey cans to rust too. A wood or coal stove may be used in heating, but it needs constant attention to keep the fire just right; and I now use and prefer a gasoline stove for the purpose, first heating the water boiling hot on the kitchen range, to save time. It is safe to start with the water at the boiling-point, as the cold honey lowers the temperature at once. The gasoline flame can be regulated so as to keep it just hot enough. In fact, I have sometimes put the honey on to melt at bed time, and then went to bed, leaving it melting all night; but in that case I should leave the flame low enough so the water surrounding the honey would be not higher than 150 degrees; for it should be borne in mind that the temperature will rise as the honey gets melted. It's very easy to ruin the honey by getting it too hot, especially honey of delicate flavor, like that from white clover and all varieties that contain pollen grains. basswood honey, owing mainly, I think, to the absence of pollen grains, may be heated much hotter without damage.

While it is probably all right for an expert like Mr. Pouder to heat his honey to 190 degrees, I think the limit of 180 degrees, as given by the editor on page 802, or 160 degrees as given in the ABC of Bee Culture, is much safer to give out to the general public. I have had clover honey that would not stand 190 degrees without impairing the flavor, and, of course, would be ruined if allowed to get much hotter; and for my part I can see no need of heating so near the danger point. I think it best to melt slowly,

allowing, say, five or six hours for clover and two or three hours more for basswood, and not letting the temperature rise above 150 degrees for clover or 160 for basswood, until it is melted so no lumps can be found in it. Then the temperature should be raised about 20 degrees, and held there an hour or so, when the honey is ready to put up. The tank I use in filling bottles and tumblers holds about 16 gallons, or is large enough to hold either three five-gallon square cans full or the contents of two of my regular six-gallon storage-cans.

My clover and basswood honey is always light in color, for, notwithstanding the heavy expense for large apiaries, every hive is provided with a queen-ex cluding honey board, and consequently my extracting-combs are clean. But in buying I often get honey which, owing to having been raised in dark combs, is darker that my own, though equal in body and flavor. In this case I put in two or more cans alternately, as mentioned by Mr. Pouder, so as to equalize the color as well as the flavor.

My filling-tank is set over a pan of water, and the whole thing set on the step burner of my gasoline-stove, so the honey can be kept hot during the process of putting up. I used to dip out part of the honey from the can in the melting-vat, and lift out the can from the hot water, and pour in the rest of the honey. But the five-gallon square cans had to be lifted out bodily by a slender ring at the imminent risk of being scalded by the ring breaking loose; so I now use a glass siphon to run out the honey into the filling-can. I prefer to keep the honey up to 140 degrees or more until it is sealed up in the bottles or tumblers.

I have never used wax in sealing up, and do not think it necessary if packages can be sealed air-tight without it. The main idea is to cause a vacuum, as in canning fruit; and to aid in securing this the packages should be filled as full as convenient with the hot honey, and there will still be a space left when cold, the same as in canned fruit; and the smaller this space is, the better, as the honey will then remain more quiet, which is important.

It may be interesting for clerks or customers to invert a jar or tumbler of honey, and watch the bubble of air rise slowly through the honey, and it may also be an effective way of showing the body and general attractiveness of the honey; but the more it is moved back and forth, the sooner it will grain. Just imagine, if you can, how it would seem to have honey

put up by the bees in their waxen bottles in such a slipshod manner that it could be slopped about from side to side or from end to end, and then remember that honey rarely candies in the comb unless exposed to a very low temperature.

On page 802 the editor asks why it will not do to bottle up honey cold. I will answer that by saying that, if I were asked the quickest way to make honey candy, I would say, "Pour it cold from one dish to another." Besides this, it would not stay in the bottles, as there would be no vacuum; and just as soon as it was put in a warm store, it would expand and stream over the sides.

I well remember putting up a dozen glasses for a grocer who would not wait to have it heated, saying it would do just as well to put it up cold. He never wanted any more like that. Every glass ran over, although not filled quite full; and the fun of it was, they never stopped running over. He would wash them all off clean every morning, and they would begin to stream down the sides before noon, or as soon as it got warm in his store.

But, to return to my process. never used the square bottles and corks, as I have always felt it would be an imposition on the consumer to give him a comparatively worthless bottle with his honey when I could just as well give him something that would be useful for some other purpose. I have heretofore used jelly-glasses and pint Mason jars; but lately I have got to using the No. 25 jars sold by The A. I. Root Co., and like them best of all. They hold a full pound, and are the most perfect self-sealing fruitjar that I have ever seen—have a smooth surface to stick on lables, etc. The jellyglasses are much harder to seal, but it can be done so that but few will leak by using two or more thicknesses of paper, putting smooth tough paper like manila or waxed paper next the honey, and some soft spongy kind on top of that, like that used for pencil-tablets. The labels should always be put on while the glasses are warm, as they stick much better at that We use a small label, one by two tıme. inch, gummed, first passing it over a moist sponge and then applying it to the The sponge is tied to a small board fastened down to the table so it will remain stationary. The caps are put on the glasses by forcing on by the hand, while the operator has to stand in a stooping position. This is because I use paper enough to make the covers go on air-tight, and have to bring some weight to bear in order to do it. I have tried other ways, but had to come back to the

old tiresome way, so the fingers could be used to guide the covers on straight. Perhaps I can best describe it by saying that I put on the covers as the Irishman played the fiddle. When asked whether he played by ear or by note, he said, "Nayther, but by main strength, be jabers,"

GOING WEST AND NORTHWEST.

The best line west of Chicago, if you are going to any point in Montana, Idaho, Washington, Oregon, Kansas, Nebraska, Colorado, Wyoming, Utah, Nevada or California, is the CHICAGO, MILWAU-KEE AND ST. PAUL RAILWAY. Direct and short lines between Chicago, Sioux City, Omaha, Milwaukee, La Crosse St. Paul and Minneapolis. Solid vestibuled, electric lighted, steam heated trains; free reclining chair cars: compartment and sleeping cars; the finest dining cars in the world. If you contemplate a trip West or Northwest call on any coupon ticket agent in the United States or write to Harry Mercer, Michigan Pass: Agent, 32 Cumpus Martius, Detroit, Mich., saying where you are going, about when you will start, how many there will be in the party, and full information, with maps, time tables and rales of fare will be promptly furnished free. Be sure to ask for your tickets via C., M. & St. P. Ry.

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent.; except that a few dealers charge only five per cent. when a shipment sells for as much as one hundred dollars.

CHICAGO—We quote as follows: Fancy white, 16; No. 1 white, 14 to 15; fancy amber, 12 to 13; No. 1 amber, 10; fancy dark, 10; No. 1 dark, 8; white, extracted, 7½ to 8; amber, 7; dark, 6½ to 6¾; beeswax, 28.

R. A. BURNETT & Co.,

Nov. 19. 163 So. Water St., Chicago, Ill.

CINCINNATI, OHIO —The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for 16 cts.; lower grades do not want to sell at all. Extracted is selling slow; amber sells for 6½ and higher. Fancy white clover brings 8 and 8½. Beeswax 28.

C H. W. WEBER, Jan. 14. 2146 Central Ave., Cincinnati, Ohio.

CHICAGO Cood depend for forms com

CHICAGO—Good demand for faucy comb honey if properly put up. We can supply the trade with fancy white extracted honey. We quote as follows: Fancy white, 15 to 16; fancy amber, 13 to 14; fancy dark, 10 to 12; white, extracted, 7¾ to 8; amber, 6 to 7.

S. T. FISH & CO.,

Jan. 11. 189 So. Water St., Chicago, Ills

BUFFALO Buffalo is very quiet on honey of all grades, and a sale means a cut in prices Wax very quiet and slow. We quote as follows: Fancy white, 14 to 15; No. 1 white, 13 to 14; fancy amber, 11 to 12; No. 1 amber, 10 to 10½: fancy dark, 8 to 9; white, extracted, 8 to 9; amber, 7 to 7½; beeswax, 25 to 27.

BATTERSON & CO.

Jan. 15. 167 & 169 Scott St., Buffalo, N. Y.

NEW YORK—Market on comb honey is in good condition, with short supply. Bee-keepers having any left on hand, better send in now. Market is quiet on extracted of all kinds, and likely to continue so. Beeswax is firm and in light supply. We quote as follows: Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 13; No. 1 amber, 12; fancy dark, 10 to 11; No. 1 dark, 10; white, extracted, 7½ to 7½; dark, 5 to 5½; amber, 7 to 7½; beeswax, 27 to 28.

HILDRETH & SEGELKEN,

Jan. 14. 120 West Broadway, New York.

NEW YORK—The demand for all grades of comb honey still continues to be very brisk. Our receipts are rather light. We quote as follows: Fancy white comb, 15 to 16; No. 1 white, 13 to 14; No. 2 white, 12½ to 13½; buckwheat, 10 to 11. There is but a small demand as yet for buckwheat extracted, some small sales reported as low as 5½ cents. Beeswax is in good demand and firm at 28.

FRANCIS H. LEGGETT & CO.

Jan. 11. W. Broadway Franklin & Varick Sts.

KANSAS CITY—Receipts are light, and de mand is firm at prices given. We advise ship ments. We do not look for much if any decline in market for some time, as it seems that nearly all of the honey has been marketed. We quote as follows: Fancy white, 15 to 15½; No. 1 white, 14 to 15; fancy amber, 13 to 14; No. 1 amber, 11 to 12; fancy dark, 9; white extracted, 8 to 9; amber, 7 to 7½; dark, 6½ to 7; beeswax, 22 to 26.

W. R. CROMWELL FRUIT & CIDER CO., Nov. 19. 423 Walnut St., Kansas City, Mo.

THE

A. I. ROOT CO.,

10 VINE ST., PHILADELPHIA, PA

BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight.

-If you are going to-

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON. Flint, Mich.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

3-99-tf

THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

- If you wish the best, low-priced -

TYPE - WRITER.

Write to the editor of the Review. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.



Here we are to the Front for 1900 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. We al-

so carry a complete line of other supplies.
Catalog free. R. H. SCHMIDT & CO.,
9-99-tf. Sheboygan, Wis.

Queens.

W. H. Laws has moved his entire apiaries to Round Rock, Texas, where he will rear queens the coming season. The Laws strain of faultless, 5-banded Italians are still in the lead. Breeding queens of this strain, \$2.50 each. He also breeds leather-colored, from imported mothers. Tested queens, either strain, \$1.00; 6 for \$5.00. Untested, 75 cts.; 6 for \$4.00.

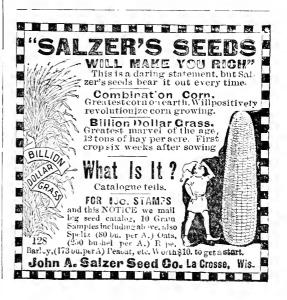
W. H. Laws, Round Rock, Texas.

I am advertising for B F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and vioiin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mieli.



e Want to sell you bee-keepers supplied to give you entire satisfaction.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties-Hives, Sections and Comb Foundation. Cash paid for beeswax. 1-01-tf .

M. H. HUNT & SON, Bell Branch, Mich.

Exhibition Hives.

I shall probably make no more exhibitions of bees and honey at fairs. I have too many other irons in he fire. I have about a dozen nucleus exhibition hives that I would sell for 50 cents each. They are nicely made, with glass in one side and wire cloth on the other. Six of them are painted a bright vermillion and the others a bright blue. They are of the right size for taking one Langstroth frame. They cost \$1.00 each to make them.

I also have about 100 of the old-style Heddon super, of the right size to use on an 8-frame, dovetailed hive. This is the best super there is if no seperators are used. They cost 20 cents each to make them when lumber was cheap. They are well painted and just as good as new, but I would sell them at 15 cents each.

W. Z. Hutchinson, Flint, Mich.

Bee keepers should send for our

CATALOG.

We furnish a full line of supplies at regular prices, Our specialty is Cook's Complete hive.

J. H. M COOK. 62 Cortland St., N. Y. City Please men...on the Review.

MY GOLDEN AND LEATHER - COLORED

Are bred for business and beauty. I furnish queens to the leading queen breeders of the U.S., I furnish and have testimonials from satisfied customers in the U. S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

4-00-tf

J. W. MINER, Ronda, N. C.

THE STATE AGRICULTURAL COLLEGEI

Dept Zoology, Entomology and Fhysiology.

C. P GILLETTE, M S , P OFESSO ?.

ELMER D. B LL. M. S , A SISTANTS. E. S. G TITUS, B. S.

QUEEN

BY

BEE'S

FT. COLLINS, Colo., Nov 9, 'oo.

Mr. A. D. D. WOOD, Lansing, Mich.

Dear Mr. WOOD .- Your letter and the

bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they run very uniformly as follows:

Whole reach of "tongue," from base of submentum to tip of ligula, 26-100 of an inch; ligula alone to the dark mentum, 17-100 of an inch.

There were nine specimens and all their tongues were measured.

Very truly, C. P. GILLETTE.

26-ioo is over 1/4 of an

all about my queens. Order now. No cash until ready to ship. 22 years' experience. This long tongued breeder is my own importation direct from Italy. Supplies of all kinds.

A. D. D. WOOD, Lansing, Mich.

FOR SALE.

Apiary of 40 colonies of Golden Italians, in 10-frame Doolittle hives, together with fixtures. Everything

up to date. Also beautiful buildings, consisting of 8-room, 2-story dwelling, barn and other outbuildings. Peach and pear trees, grapes, etc., in bearing. No disease. Healthy cl mate Mild buildings. Peach and pear trees, grapes, etc., in bearing. No disease. Healthy cl mate Mild winters. No better locality to be had than this to those who desire to embark in the bee busing the beautiful of the beautiful or the b ness. Average yield of surplus honey. 50 pounds to the colony. Photographs sent to those interested.

J. W. MINER. Ronda, N. C.



BEE-HIVES AND HONEY-BOXES,

in car lots—wholesale or retail. Now is the time to get prices. We are the people who manufacture strictly first-class goods and sell them at prices that defy competition. Write us today.



Interstate Box & Manufacturing Co., Hudson,

ODDS and ENDS

ዝዶዝዶዝዶዝዶዝ

I am about to move to my new house, which is on a small lot with streets on three sides of it, and I shall be compelled to give up the keeping of bees. I have a few odds and ends that I would like to dispose of. I have a two basket, second-hand, Ferris wax extractor that cost \$7.00 when new. I will sell it for \$3.50. I have a new Ferris, single-basket wax extractor, list price \$3.50, would sell for \$2.50. I have a new, Doolittle, solar wax extractor, list price \$3.60, would sell it for \$2.50. I have ten dozen, t-pound, square, flint glass, Muth jars with corks, worth 50 cents a dozen, new, would sell at 30 cents a dozen, new, would sell at 30 cents a dozen. There are four dozen of the same kind of jars, only they hold two pounds instead of one and cost 62 cents a dozen when new. I would sell them at 45 cents a dozen.

W. Z. HUTCHINSON,

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that defy competition! Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of Sections—polished on both sides. Satisfaction guaranteed on a full line of Supplies. Send for catalogue and be your own judge. AUG. WEISS, Hortonville, Wisconsin.

19



1

This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.88; 1,000 for \$3.25; 3,000 for \$8.90; 5,000 for \$13.00; 10,000 for \$22.60.

No. 2 sections are not made to order, but when in stock are sold at \$1.80 per M.

J. FORNCROOK,

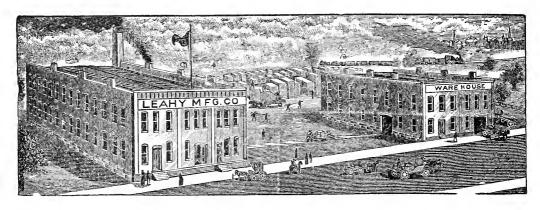
Watertown, Wisconsin.

If tha

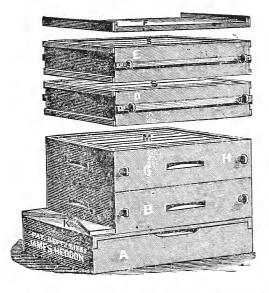
REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser; and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a *daisy* now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bze-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Hieginsville, Mo.. East St. Louis, Ills. Omaha, Nebrasha.

DADANT'S

Foundation

By the new **Weed Process** is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son

Hamilton, Ills.

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

Marshfield

Mfg. Co., Marshfield, Wis.

SPECIAL NOTICE.

Last winter's cut of basswood is the whitest it has been for many seasons. We are now making sections out of this new stock and therefore are in a position to furnish you with he very finest quality in the market.

Lewis' White Polished Sections

Are perfect in workmanship and color. Orders shipped immediately upon receipt. Five different styles of Bee-Hives. A complete line of everything needed in the apiary.

Lewis' Foundation Fastener

Simplest and best machine for the purpose. Price, \$1.00, without lamp.

G. B. LEWIS CO, Watertown, Wis., U.S.A.

Branches:—
G. B. Lewis Co., 19 So. Alabama St.,
Indianapolis, Ind.
G. B. Lewis Co., 515 First Ave., N. E.
Minneapolis, Minn.

Agencies:— L. C. Woodman, Grand Rapids, Mich. Fred Foulger & Sons, Ogden, Utah. E. T. Abbott, St. Joseph, Mo.

Send for Catalog.

Queens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I am able to secure the mating of my queens with drones from the most desirable colonies. Special attention is given to the selection of both queen-and-drone mothers from colonies that show marked industry, and cap their Safe arrival white. guaranteed, and every queen warranted to produce light vellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, she will be replaced, or money refunded. shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

IAS, F. WOOD, No. Dana, Mass.

Post Fountain Pen.

The very best in the market; regular price \$3.00, and not obtainable under this price anywhere.



THE SIX CARDIVAL
POINTS PECULIAR
TO THE "POST: "

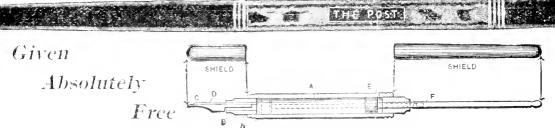
SELF FILLING,
SELF-CLEANING,
SIMPLICITY,

RELIABILITY.

DURABILITY.

NO LEAKING.





For two new subscriptions to Gleanings and your own renewal with \$3.00; or for one new subscription and your own renewal with \$2.50; or your own subscription will be advanced 2 years, and the pen furnished for \$2.50.

In each case all arrears, if any, must be paid in addition, the above offers being for subscriptions fully in advance only. I believe we can say truthfully, without tear of contradiction, that no fountain pen ever put upon the market ever received in so short a time so many unsolicited testimonials from such distinguished men as the POST - The above drawing shows its construction - To fill the POST all you have to do is to dip the nib into the unk-bottle, draw out the plunger, and the peu is ready for use. Compare this with unscrewing the ordinary style and refilling with a glass filler that you cannot always find when wanted. The self-cleaning leature of the POST, as illustrated, will also commen litself. With most pens specially prepared in limits be used or they are of no use, because they become so guitingd up and it is well high impossible coclean them. With the POST you simply dip the nib in water draw the plunger back and four like a syringe or squirt gun, and in less than five seconds it is clean and tree for a perfect flow of any ink that may be handy. We will send on request, a few of the many testimonials from noted men in various callings who have written merited words of praise for this most valuable invention. We can not offer the pen for sale for less than \$3.00 but by special arrangement we are enabled to offer it free as a premium with Gleanings in any of the following combinations. All arrears at any, must first be paid at \$1.00 a year. Then for 3,00 we will send Gleanings for one year, or till Lin 1, 1902 to two names; for one year to yourself and send you the pen free. For \$2.50 we will send you the pen and Gleanings for one year, and to one new subscriber a year for \$2.50 we will solid the pen and Gleanings for two years. If you have ever been disappointed with a fountain pen we assure you that you will not

The A. I. Root Company, Medina. O.

At Flint, Michigan,—One Dollar a Year.

ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 percent; 6 times, 20 percent; 9 times, 30 percent; 15 times, 40 percent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with-

Gleanings. (new) (\$1.00) \$1.75
A n rican Bee Journal (new) (1.00) 1.73
C madian Bee Journal (1.00) 1.75
Progressive Bee Keeper (.50) 1 35
American Bee Keeper (.50) 1.40
The Southland Queen (1.00) 1 78
O io Farmer (1.00) 178
Farm Journal (Phila.) (.50) 1.10
Rural New Yorker (1.00) 1.85
The Century 4.50
Michigan Farmer (1.00) 1.63
Prairie Farmer (100)1.78
American Agriculturist (100)17
Country Gentleman (2.50) 3. 3
Harper's Magazine (4.0) 4.10
Harper's Weekly (400) 4.20
Youths' Companion (new)(.75) 2.38
Cosmopolitan
Success, 1.78

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and combinisoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells un-ealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission the balance being sent to the shipper. Commission is ten per cent: except that a few dealers charge only five per cent, when a shipment sells for as much as one hundred dollars.

CHICAGO—We quote as follows: Fancy white, 16; No. 1 white, 14 to 15; fancy amber, 12 to 13; No. 1 amber, 10 to 11; fancy dark, 10; No. 1 dark, 8 to 0; white, extracted, $7^{\rm I}_4$ to 8; amber, $6^{\rm I}_2$ to $7^{\rm I}_2$; dark $\approx 10.6^{\rm I}_4$; beeswax, 28.

R. A. BURNETT & Co.,

Feb. 14 163 So. Water St., Chicago, III.

CINCINNATI OHIO—The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for 16 cts.; lower grades to sell at all. Extracted is selling slow; amber sells for 6½ and higher. Fancy white clover brings s and 8½. Beeswax 25.

C. H. W. WEBER, Jan 14. 2146 Central Ave., Cincinnati, Ohio.

CHICAGO— We are entirely cleaned up on comb honey, and anyone wanting to entrust shipments to our care, we will be pleased to follow instructions. The following quotations according to package: Fancy white, 15 to 15; fancy amber 12 to 14; fancy dark, 10 to 12; extracted, 7 to 8, bees wax 29.

S. T. FISH & CO.,

Feb. 14. 189 So. Water St., Chicago, Ills

BUFFALO - Demand is much improved and it looks as though Buffalo would clean up in good shape. Might do to send a few lots of fancy; but no dark at present. We quote as follows: Fancy white, 15 to 10; No. 1 white, 13 to 14; fancy amber, 11 to 12; No. 1 amber, 10 to 11; fancy dark, 9 to 10 No. 1 dark, 8 to 0; white, extracted, 7 to 8; beeswax, 25 to 28.

BATTERSON & CO.

Feb. 14. 167 & 169 Scott St., Buffalo, N. Y.

NEW YORK—Market on comb-honey is in good condition, with short supply. Bee-keepershaving any left on hand, better send in now Market is quiet on extracred of all kinds, and likely to continue so. Beeswax is firm and in light supply. We quote as follows. Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 13; No 1 amber, 12; fancy dark, 10 to 11; No. 1 dark, 10; white, extracted, 7\frac{1}{2} to 7\frac{1}{4}; dark, 5 to 5\frac{1}{2}, amber, 7 to 7\frac{1}{4}; beeswax, 27 to 28

HILDRETH & SEGELKEN,

Jan. 14. 120 West Broadway, New York.

NEW YORK - The demand for all grades of comb honey still continues to be very brisk, our receipts are rather light. We quote as follows Fancy white comb 15 to 16; No. 1 white, 15 to 14; No. 2 white, 12½ to 13½; buckwheat, 10 to 11. There is but a small demand as yet for buckwheat extracted, some small sales reported as low as 5½ cents. Beeswax is in good demand and firm at 28.

F ₹ANCIS H. LEGGETT & CO

Jan 11. W. Broadway Franklin & Varick Sts

KANSAS CITY—Market—is firm, demand fair—Think that with lower price movement would increase considerably. Receipts are light We quote as follows: Fancy white, 16 to 17; No—r white, 15 to 10; fancy amber, 13 to 14; white, extracted, 7½ to 0; beeswax, 22 to 28.

W R CROMWELL FRUIT & CIDER CO., Feb. 15. 423 Walnut St., Kansas City, Mo.

Winter

Losses are not always the result They may of the same cause. come from starvation; from poor food; from improper preparations; from improper protection; from a cold, wet, or possibly, a poorly ventilated cellar, etc,, etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirtytwo chapters treat as many different phases of the wintering problems.

Price of the book; 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
Flint, Mich.

Send us a list of what goods you what and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and New Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy of The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

JAMESTOWN, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring broad frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y



Pacific Queens

Of three - banded, Italian, honeygathering stock.

Circular free,

W. A. H. GILSTRAP,

Gravson, 2-01-6t

Calif. Stanislaus Co.

- If you wish the best, low-priced -

WRITER. TYPE

Write to the editor of the Review. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

-If you are going to-

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona. and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coil Wire
61 Section Cases (Wide Frame and tin sep-
arators) at
68 Covers at
53 Bottom Boards at10
53 Honey Boards, Queen excluding at15
30 Escapes at15
50 Feeders (Heddon Excelsior) at 25
30 Alley, Queen and Drone traps. at 35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller partien lars upon inquiry.

W Z. HUTCHINSON. Flint, Mich.

A TOTAL STATE OF THE PARTY OF T Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000. but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

number of num	ios in onon state	•
Arizona 46	Ky 182	N. C60
Ark 130	Kans . 350	New Mex 26
Ala 80	La 38	Oregon 104
Calif 378	Mo 500	Ohio 1,120
Co10 228	Minn 334	Penn 876
Canada 846	Mich1,770	R. 1 48
Conn 162	Mass. 275	8. C 40
Dak 25	Md 94	Tenn 176
Del 18	Maine, 200	Tex 270
Fla 100	Miss 70	Utah 68
Ga 90	N. Y 1,322	Vt 160
Ind 744	Neb 345	Va 182
Ills 40	N J 180	W. Va 172
Iowa. 800	N. H 126	Wash 128
		Wis 5co

W. Z. HUTCHINSON. Flint, Mich.

A Want in Rhyme.

There never was a clover field made so happy, Until a glossy little bee appeared.

So to this adv. please take notice dear B-keeper, That I the Superior, Red-clover, long-tongue strain breed.

I want your name, and in return w 11 mail my catalogue for 1901. It gives full information; tells how I give free breeders valued at \$3.00. is no "feathered" adv.: but genuine. Long tongue bees are what 20th Century bee-keepers should keep. Now is the chance to get them. Every bee-keeper write. This adv. may not appear again. 10,000 names wanted

PORTER A. M. FEATHERS,

Oak Hill, Volusia Co, Fla.

Please mention the Review

THE

A. I. ROOT CO..

10 VINE ST., PHILADELPHIA, PA

BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight. .

Hutto, Tex., April 10, 1900

THE PARTY OF THE P

If you wish to see the picture of a

#1010

Dead Bear,

and the havoc that he played in one of my apiaries, where he destroyed 52 colonies, and I was lucky enough to kill him, send me 35 cents and I'll mail you the photograph. After I killed the bear I had an artist go and take several views, with the dead bear lying in the ruins. I consider that I have one of the greatest novelties in the way of apiarian pictures. They are 5×8 and nicely finished and mounted.

But don't imagine that I have no more bees left. I have some of the very

Best Stock

obtainable. Some of Root's \$200, red clover queen's stock, and some of J. P. Moore's with a tongue-reach of 21-100. Send for circular that will give full particulars and prices.

W.O. Victor,

Wharton, Texas.

T. F. Bingham,
Enclosed find \$1.75
Please send me one brass smoke
engine. I have one already. It i
the best smoker I ever used.

ining a throng to should be coming a primal by primal by spirit by William by

Wm Bamber,

Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possi-Making his own ble prices. foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock.

Dittmer's Foundation

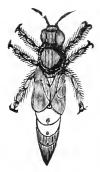
At Wholesale and Retail.

This foundation is made by an absolutely non-dipping process; thereby producing a perfectly clear and pliable foundation that retains the odor and color of beeswax; and is free from dirt.

Working wax into foundation for cash, a specialty. Write for samples and prices.

A full line of Supplies at the very lowest prices, and in any quantity. Best quality and prompt shipment. Send for catalog. Beeswax wanted.

GUS DITTMER,
Augusta, Wisconsin.



Look! This "long-reach" queen is of the beautiful, leather - color. Her workers are as gentle as flies. I use no smoke nor veil with them. Send your order for some when writing for a circular. You can countermand it if you wish.

Bee-suppliei for sale.

A. D. D. WOOD, Lansing, Mich.

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. Pouder's honey jars. Prompt service. Low freight. Catalog free. Walter S. Pouder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Please mention the Review

Do you want thoroughbred, pedigreed,

Belgian Hares,

at reasonable prices, if you do, order from the Flint Belgian Hare Association which has just been awarded

Fourteen Medals

and ribbons, and fifteen special prizes on its exhibit of imported and domestic hares at the Michigan, State, Belgian Hare Exhibition. We have the latest, leading strains of the grandest blood to be found either in England or America. Satisfaction guaranteed on every shipment.

Flint Belgian Hare Asso. Flint, Mich.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

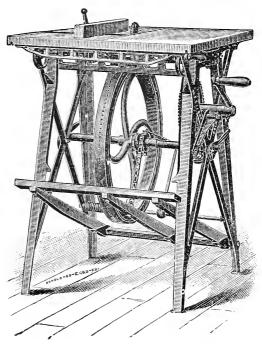
Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

384 Ruby St.,

Rockford, Ills.







APIARY AND HOME OF W. J. FREE, FRANKFORD, ONT., CANADA.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers \$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor,

VOL XIV, FLINT, MICHIGAN, FEBRUARY 10, 1301. NO. 2.



SUN-CAP THAT FURNISHES EXCELLENT SPRING AND WINTER PROTECTION. BY W. J. FREE.

My hive is the Langstroth, holding eight frames and follower. They are of the Hoffman style, same as catalogued by the A. I. Root Co. The bottom-board is reversible; one side being raised 34 of an inch. When this side is up it leaves a space, below the frames, of 118 inches. The cover is a little different from most covers in use; being composed of a honeyboard and sun-cap. The honey-board is exactly the size of the top of the hive, and 3/4 of an inch thick, cleated at each end to prevent warping. Sun-cap is 1/4 inch longer, and ¼ wider, inside, than the outside of the hive, three inches deep, and covered on top with a sheet of stovepipe iron painted on both sides. sun-cap rests on a cleat 7/8 of an inch below the top of the hive. This cleat goes clear around the hive and answers for a hand-hole.

This is the time of the year I get my bees ready for winter. Of course, feeding would be done earlier. Now is the time the hive is put in shape for winter. By reversing the bottom-board the entrance is closed to a space of $3\frac{1}{2}$ inches by $\frac{3}{8}$

deep; the honey-board is removed and a sawdust cushion used instead. cushion is made as follows: a wooden rim, the size of the hive, and 11/2 inches high, with a bottom of factory cotton below four thicknesses of newspaper, is placed on a flat board, filled full of fine sawdust, pressed down quite firm, and covered with four or five sheets of newspaper. This makes the best cushion that I know of for winter and spring. is very little if any upward ventilation, which I believe to be detrimental. porous covering robs the bees of their warmth, which leads to an increase of honey consumption.

When the hives are placed in the cellar, which is under my dwelling, the suncaps are removed, also the entrance closer, leaving the entrance open full width, 12½ x 1½ deep. The hives are placed in piles four high and about two feet from the bottom of the cellar. The bottom-board of each hive is placed flat on the sawdust cushion of the hive below it; thus the bottom-boards are kept warm and dry. To keep the bottom of the first one warm, a cushion is placed on the stand for the first hive to rest on.

I aim to keep the temperature at about 45°. If it gets much below that I build a fire in the stove of the cellar kept for that

purpose. I have had fair success with this system of management. watched these cushions closely for some years, and I always find them dry next to the bees. When setting my bees in the cellar (which is always in cold weather) I have left the honey-boards on some hives. They would be covered with a thick coat of ice, while the cushions would be perfectly dry. The cushions are left on all hives until about the first of June. When placing the cushions on the hives I cover the frames first with a cotton quilt, so that the cushion can be removed at any time, and the bees examined. These cushions are a grand protection in the spring. I have just painted the tops of the sun-caps dark red, so they will absorb the sun heat and warm the sawdust cushion, which will retain the heat for some time.

I produce mostly extracted honey. My favorite package for extracted honey is a second-hand glucose barrel, holding between 500 and 600 pounds. They cost about 80 cents each, and are preferred by biscuit manufacturers to any other package; and it is to this class of manufacturers I have sold my honey for some years.

My honey-house does not show in the picture, being situated at the lower, right hand corner of the yard; making it down hill to run the honey to the extractor.

Frankford, Ont., Oct. 17, 1900.





RGANIZATION, HOW IT
WAS SECURED AND
WHAT IT HAS DONE
AMONG NEW YORK BEE-

KEEPERS. BY F. GREINER.

Perhaps at no previous time have the bee-keepers of America felt the need and seen the advantages of organization as just at present; and it would probably serve a good purpose to devote some time, thought and space to the discussion of the problem of how best to organize

and how to make the most out of organization.

When a young boy, long before the thought to come to this land of the free entered my head, I had heard it said that in America all any one had to do in order to live well was to open his mouth, and the roasted squabs would fly right into it. Ouite an inducement to come to America; and perhaps some people may have been misled by it, for the truth lies far-very far-from that. Only by determination and hard work do we accomplish ends. Those proverbial squabs will not fly into your mouth, no matter what the size of your jaw-bones. You must work for anything you want.

The bee-keeper who wants organization to protect and assist him, and is waiting for the wished-for-things to come about, will have to wait long. He must go about it with a determination, and he must make the organization what he wishes it to be; he *himself* must be a part of that organization.

New York State has become somewhat prominent of late for its efficient organization. There seemed to be a great need felt for such. The problems before the bee-keepers were of such a character that the individual was powerless; at least, could do but little. The old State organization could not be induced to make a bold front to these new problems, and, as a compulsory act, so to speak, a new organization sprung into existence. few of the most determined men got together and decided to, and did, issue a call for a bee-keepers' meeting to which the fraternity willingly responded. course, these first gatherings bore a more local character. In fact, it was the intention to organize in counties or districts. After one county had organized, others followed—Seneca County, Ontario County, Cayuga County, and others, soon were in line. It was not all the work of one man, and yet one was more prominent, was and is the leading spirit of the whole. New counties were organized by inducing interested men from adjoining counties

to attend the meetings of those already organized. These men became enthused, went home, and organized their own forces.

We found that even a small County organization had a great deal of influence with our law-makers. When copies of certain resolutions, endorsed by such a body, were sent to our assemblymen and senator, attention was paid them in every instance. A benefit accrues when secretary and president of an organization are personally acquainted with our law-makers, and know how and when and where to pull the string. Bee-keepers can congratulate themselves if they find such men among their number. If they don't, they must learn to do these things.

It is business-like that each organization has its own printed stationery, with showy letter-heads. A letter to a Representative written on such a sheet, signed by secretary or president of the society, seal attached, is not apt to be shelved.

If the *United* States of America were but States of America, they would not have the power they now have. The same would be true of the bee-keepers' societies of New York State. All the societies united have such an influence, such a *power*, that they can make themselves felt in the legislature whenever they desire.

As the States are represented in Washington by congressmen who are only delegates from their districts, so the local bee-keepers' societies are represented in the State association. Each County sends two delegates, and pays \$2.00 into the common treasury. The delegates only have the right to vote, but any member of a County society in good standing has an advisory voice in the body. The delegates, when attending the State meeting, may present to the secretary any resolution that may have received the endorsement of the local society and which they · desire to have pushed. If found of importance, the resolution may be adopted by the State organization, when the secretary will send copies of same to the members of the legislature. If, in addition, the bee-keepers write individual letters to their respective representatives, the matter cannot well help to find a hearing.

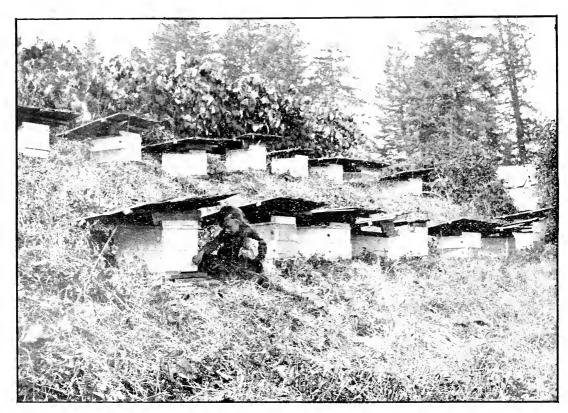
Some of our Counties have been organized for 10 years or more, while the State organization was not formed till three years ago, but we are proud in saying that it has outlived its experimental stage and has already accomplished enough to justify us in believing that it has a promising future before it.

I believe it to be a fact, that bee-keepers generally have not received any substantial aid from the government, although appropriations have been voted in every state for the benefit of agriculture, of which apiculture is surely a branch. The reason why this is so is because the bee-keepers have not asked for recognition. A proper resolution adopted at a meeting of the State association, and presented by the president to the Director of Farmers' Institutes did the business in New York. At our meetings we can now have speakers from a distance furnished by the bureau of Farmers' Institutes. By arranging the dates of the meetings of the different local societies rightly, the speakers can go from one place to another, and thus accomplish much in a limited time. During this time, when the Institutes are being held, good opportunities are offered to organize new societies It requires patience and perseverance to organize, but sometimes one or two good zealous men will successfully start and keep the ball rolling.

The local societies are so organized at present that those who join them become members of three bee-keepers' societies, the local, the State, and the National, without additional expense to themselves. As a further inducement toward organization, some of the bee-periodicals are furnished to members at a discount of 25 to 50 per cent. from the regular price. We believe that the bee-keepers' institutes are going to be another inducement to organize local societies. However, if

there is not ambition or enterprise enough in the bee-keepers of a locality to organize a society, there is not much encouragement or inducement for the Institute-management to send speakers to such a locality. There is not much use in helping those who will not help themselves. If the bee-keepers in a locality show the less inclination or desire to organize,

the State association, thus giving these societies a direct voice in the management of that association. It is plainly to be seen that the more local societies there are, the more they will attract public notice and interest, and, consequently, greater influence will be exerted. If our system of organization should be universally adopted, our National Society



LITTLE VERA BONNEY, CATCHING DRONES.

every encouragement is held out to them. They are asked the name and place, where and when, they would like an institute assigned to them. The local bee-keepers are taking no risk. It requires, as said before, only a little enterprise, patience and perseverance to build up a good society in which they will take pride, regretting only that they did not act sooner.

It was up-hill-business when we few societies here started. A dozen of us sometimes raised 15 or 20 dollars, outside of our other dues, to pay the expenses of a speaker; now all is plain sailing.

The president of every local society is also a member of the advisory board of

would be in a position, not only financially but numerically, that our influence would be felt in Washington and anywhere in the United States. That this will soon take place is the sincere wish of the writer.

NAPLES, N. Y. Jan. 17, 1901.

my frick

EACHING CHILDREN API-CULTURE. BY C. T. BON-NEY.

I have read the bee papers for several years, but have seen very little in their columns in regard to teach-

ing children apiculture. I had hoped that some one more able than myself would take up the subject long ere this, and explain its interests and benefits, but, as no one has, I will give my ideas, in hopes that abler pens than mine will take up the subject and give it the attention it deserves.

I was much gratified to learn through the bee papers that Mr. York and others had been giving lectures on bees before the children in the public schools, and I wish the same thing could be done everywhere in the schools, as I feel sure that a great benefit could be derived from such lectures, but, as all of our children do not have the privilege of hearing such lectures at school, we will do well to give them lectures at home, and get them interested in the bees. I find this can best be done by giving them a hive of bees. There is something in a child, as well as in a grown person, that likes to say "this is mine," and children will be very proud of their own property. When the colony swarms, and they have two, their joy seems almost complete. Not only give the child the colony, but all of the returns. This will create a still greater interest. Then, by furnishing books and bee papers, and encouraging the child to read, it will not be long before it will be manipulating and caring for its own hive, or, in other words, running a business of its own; and, in marketing the honey, buying sections, foundation, etc., it will be getting a few business lessons along with the rest. But this is not all, to educate the child in bee culture as it grows up, brings it in close touch with Nature, and some of her wonderful ways, and the more of a student of Nature one becomes the richer harvest will one find in the bees and flowers. As the child grows older, it is sure to admire the wisdom which created these wonderful things, and thus the mind is led from Nature up to Natures' God; and to point the child to its Creator should be, in my judgment, the highest aim of every parent.

Yes, by all means teach the children apiculture; and, as the source of honey is the flowers, they will soon become interested in them, and be better and happier for the knowledge. Home will be dearer in the future, not only for the lessons learned there, but because of the finer and better nature developed.

WOODBURN, Oregon, Jan. 18, 1901.



OF BEE-KEEPING. BY W. A. H. GILSTRAP.

It is certainly advisable to examine self at times. We should, also, at times, take a fair square look at the



progress of our vocation. Perhaps, at the beginning of a new century, would be a very good time to note progress on apicultural This highway. embraces "lookbackward" as well as taking a peep at the possibilities

of the future. The century now closed has recorded greater progress in our art than one could well believe without a careful examination of the subject. One hundred years ago there were no movable combs, as we understand the term; no comb foundation; no extractor; no sections; no bellows smoker; in fact, there was very little connected with bee-keeping except bees, gums and a very limited knowledge of the habits of bee. It seems that all the great modern inventions in our pursuit were brought to public notice between 1850 and 1875. The use of queen-excluding metal is recommended in several books on apiculture in my possession, but no hint is given as to the time of its introduction. It "just growed,"

Topsy would say. The only clue in my possession is on page 656 of Gleanings, 1898, where Mr. F. Greiner says that Mr. Hahnneman (or Hanneman), the inventor, described the queen-excluder in German papers, in 1875 and later.

Many minor inventions and discoveries have been made in the last twenty-five years. Tinkering with this and that device and plan of management has been practiced, which has resulted in general good.

The wheels of progress have now turned backward to get a new grip on old cogs. We are now delighted to see so many looking to the bees for a solution to many of our questions. The inteligent, enterprising, persistent bee fancier is here to stay. It is not so much the fancy of golden bands as of golden honey, coupled with the bee that it is a pleasure to handle. The ad. that boasts a grand breeding queen whose progeny all have five vellow bands is doomed when brought face to face with the industrious strain with quarter-inch tongues, which sips gallons of red-clover honey, when other strains are being fed. It is coming to the front that for bees to succeed as honey gathers, it is no more necessary for a bee to have a number of diplomas, won in mortal combat, than for a man's useful qualities to be measured by the same standard. The reckless hobby of turning Apis Dorsata loose in California and the South seems to be a back num-The Italian seems able ber, so to speak. to hold its high position in public favor.

Several years ago the subject of contraction held quite a prominent place in our literature. It finally became so generally abandoned that a prominent editor spoke some two years ago of "the contraction fad," and another editor forgot how much contraction he had formerly practiced. The doctrines of contraction and expansion (they go together) will never entirely down while the nature and habits of bees remain as they are. This old chestnut is getting quite a growth in some quarters just now. In nothing

connected with our pursuit is a knowledge of bees, ranges and seasons better repaid, than when coupled with prompt action

The bearing that locality has on many phases of the industry must be better understood. If bees with 30-100 of an inch tongues are better workers on alfalfa or honey dew than those whose tongues measure 20-100 of an inch, we should all know it and work in that direction. the Italian bee is hardly as fixed a type as some animals we have, we are able to take advantage of desirable variations oftener. We must learn what bee and what fixture is desired in each locality. The tank that exactly fills the bill for sage or white clover, falls far short where honey is produced late in the season, with a strong tendency to granulate. bees will not work over three-quarters of a mile from the apiary from choice. Others say their bees work several miles from home just as well as near the apiary. there is actually so much difference we should know in what localities the ramblers are more valuable.

In the manufacturing of supplies we may expect much progress. We are certainly reaching a higher grade of excellence in permanent fixtures as well as in the preparation of our crops for market. The up-to-date section box of the present would have been a wonder a few years ago, while it is unnecessary to say how a complicated piece of fine workmanship like the Danzenbaker hive would have been received. As an illustration of what we may expect in the highly profitable manufacture of supplies in the future, in large quantities, it is only necessary to see what is being done by Weed foundation makers. The labor question is to be as nearly eliminated in making necessary equipments for our craft as any other.

Perhaps the honey business will be managed, so far as large business centers are concerned, as much by trust methods as will any rural industry. We may say we object to trusts in other industries, or

even in our own, but the signs of the times are unmistakable.

Finally, we can expect the general rush, specialty and enterprise of these last days to influence the pursuit of bee keeping to such an extent that one who does not keep in touch with our current literature for a year or two, will be quite out of date.

GRAYSON, Cal., Dec. 13, 1900.



ATING QUEENS IN CON-FINEMENT. A GEORGIA MAN'S SUCCESS WITH 100 QUEENS. BY J. S.

DAVITTE.

Replying to your inquiry as to how I get queens mated in confinement, I will say that I built a large tent, 30 feet in diameter and 30 feet high, the covering being of mosquito netting. Colonies of bees well supplied with drones were placed close up against the wall of the tent, on the outside, each colony being allowed two entrances. One entrance opened outside of the tent, and was contracted so that neither queens nor drones could pass, but allowed the workers to pass out and in, and work in the fields in the usual manner. The other entrance opened into the tent, and was large enough for the passage of a queen or drone; but it was kept closed or darkened for about a week after the colony was placed in position. This was done for the purpose of educating the workers to use the outside entrance. The drones were not allowed to use the outer entrance at any time, nor to enter the tent except from 11:00 A. M. until 1:30 P. M. After the drones had learned the bounds of the tent, they seemed contented, and made a very pretty school flying in the top of the tent. And I wish to say right here that the drones are the main feature of this problem. Once you get them quiet and reconciled to fly in the top of the tent, the problem is solved. Nine times out of ten the queen will not reach the top of the tent before receiving the most prompt and gushing attention. After I got the drones under control I had no difficulty. I simply turned in the queens from the hives they were in, just the same as I turned in the drones. I one year reared about 100 queens and had them mated in this tent. A queen would leave the mouth of the hive, and return in about five minutes, apparently mated; and in three or four days would be laying; and the progeny of all queens thus mated showed the same markings as the workers of the colonies from which the drones were taken.

The workers seem to be more annoyed than the drones when they find themselves confined in the tent; and I aim to keep them out of the tent as much as possible by not opening the tent-entrance until nearly noon, when most of the workers are in the field. As a further precaution, the tent-entrance is kept shaded or darkened.

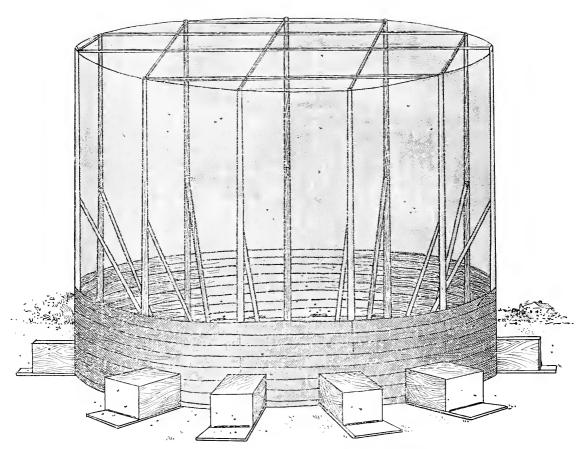
The queens are not turned in until the drones appear to be well satisfied with the bounds of the tent; and when they are in this condition I believe that 500 queens a day might be mated in such a tent. Where queen rearing is carried on upon a large scale, I believe that this plan would be preferable to the open air; as I have seen a young queen leave the hive, in the open air, as many as three times, and be gone 15 minutes each trip, returning at last unmated.

My plan for queen rearing is as follows: I choose a choice colony from which I wish to rear my queens; and from this colony I remove the queen, and allow the bees to build queen cells. At the same time I make queenless such colonies as I wish to break up into nuclei. Two davs before the queens will hatch, I form my nuclei, cutting out and destroying all cells, and arranging the nuclei around the bottom of the mating-tent. queen cells from the choice stock are then cut out and given to the nuclei, the outer entrances contracted so that no queen can pass, and the inner entrances closed entirely. After the young queens are two or three days old, I open the tent-entrances at II:00 A. M., and leave them open until I:30 P. M., each day, for several days, or until the queens are mated.

Now for the drones: At the same time that I remove the queen from the choice

the queen could reach the top of the tent. Before they separate, the queen and drone fall nearly to the ground, and the queen goes directly to her home that she left not three minutes before.

If I were to build another mating-tent, I should build it about as follows: I



MR. J. S. DAVITTE'S TENT FOR CONTROLLING THE MATING OF QUEENS.

stock for the purpose of securing queer cells, I place several hives that are strong with select drones around the walls of my tent, with the outer entrances contracted, as already explained, so that no queens or drones can pass, and, at 11:00, each day I open the inner entrance and leave it open until 1:30. With this daily exercise in the tent, for 16 days. I have my drones tamed, or accustomed to their surroundings, or under control, so to speak; and it would interest a beekeeper to take his place inside the tent at noon, and see the ladies meet the gentlemen, who, Barkis-like, are "willin." I have seen the mating take place before would secure 12 tall poles. I would have them at least 30 feet long-40 would be better. These I would plant firmly in the ground, 12 feet apart in a circle. From pole to pole, at the top, I would stretch No. 10 wire to keep the poles true and in place. I would also brace the poles from the inside; and the braces would be allowed to go up 20 feet on the inside, as the drones use only the upper part of the tent. At the top of the poles I would also stretch No. 10 wire from each pole to its opposite neighbor, thus strengthening the structure and furnishing support for the covering that goes over the top, I strengthen every seam of my netting by stitching on a strip of bridle-rein stuff about an inch in width. This allows me to stretch the covering very even and tight without tearing it. Common boards can be used around the bottom to the height of five or six feet. At noon the tent should have the appearance of a sun-palace.

ARAGON, Ga., Jan. 22, 1901.



SNOW-FLAKE, WHITE ENAMELED is the kind of paper upon which this and future issues of the Review will be printed.

KKKK KANANAN

ASTER, honey stored in the fall from the asters along the Mississippi, granulates, sometimes, before the bees get it capped; so said Mr. H. P. Miner at the Madison convention.

TIN Pails are used by Jacob Huffman for storing and shipping extracted houey. The honey is allowed to caudy, and 12 pails shipped in a crate. The consumer can liquefy the honey if he prefers it in that condition.

OFFICERS elected at the Wisconsin convention are as follows: President, N. E. France, Platteville; Vice President, Jacob Huffman, Monroe; Secretary, Miss Ada L. Pickard, Richland Center; Treasurer, Harry Lathrop, Browntown.

******* >**

THE ROCKY MOUNTAIN BEE JOURNAL is announced to appear about the 20th inst. It is to be a 16-page monthly at 50 cts. a year, and devoted exclusively to the interests of the honey producers of the arid regions of the far West. Boulder, Colorado is to be its home.

CELLARS and winter repositories are used in the summer for extracting-rooms by F. Minnick. He finds them cool and pleasant for this purpose. He told of this at the Wisconsin convention.

MANAMENTAL SERVICE

GLUCOSE in honey may be detected by adding wood alcohol equal in amount to the honey, stirring it thoroughly, and allowing it to stand ten minutes. If glucose is present the mixture will show milkiness—if pure, it remains clear. This was the report made by E. R. Root at the Wisconsin convention.

KKKKYAYAYA

Granulated honey in combs may be removed without destroying the combs by exposing the combs in the open air at a time when honey is not so plentiful in the fields as to wholly employ the bees. Sprinkle the combs occasionally with warm water, and the bees will gradually liquefy and remove the honey. Harry Lathrop reported, at the Wisconsin convention, his success with this plan.

WHEN EXTBACTING HONEY, Mr. F. Minnick places a keg upon the scales, and allows the honey from the extractor to run into the keg. As the keg fills up, the scales and keg sink. When the keg becomes full it has settled to such an extent that a stick connecting the keg with the honey-gate, closes the latter automatically. This prevents one from carelessly allowing the keg to fill to overflowing.

BARRELS FOR HONEY.

N. E. France said, at the Madison convention, that he would not use barrels if he could not get such barrels as he wanted. In Wisconsin he knew of only two coopers whom he could trust to make barrels. He would have the barrels made from selected stock, kiln dried, and hooped with iron hoops. The barrels should be kept in a hot, dry room, and the hoops driven again before putting in the honey.

Doors to the extracting room are better made of wood instead of wire cloth. If made of the latter, the bees gather upon the doors and rush in when the doors are opened. They do not gather on a wooden door. Ventilate the room by the way of the windows. F. Minnick gave us this point at the Madison convention.

PACKING is a benefit in the early spring, to encourage brood rearing, so said Mr. E. D. Ochsner at the Wisconsin convention, but he got best results from colonies occupying single-wall hives during the harvest. He said a chaff hive absorbed and retained too much heat. It did not cool off during the night. The bees in such hives did not begin work so soon or so freely in the morning.

MEASURING BEES' TONGUES was a subject over which E. R. Root, J. M. Rankin and myself had a talk while Bro. Root and myself were at Lausing, recently. The present decision is to give both measurements; that is, the full length of the tongue, and the apparent tonguereach. This method of measuring may help us to learn if there is any difference in the relative proportion between the whole length of the tongue and the tongue-reach in different strains of bees.

ORGANIZATION AMONG BEE-KEEPERS.

I wish to call attention to the article by Mr. F. Greiner in this issue. In New York there is the beginning of what many of us have dreamed may some day come true—local organizations that are contributary to a State Organization—and to a National Association. With one exception, all of the local associations in New York raised their dues last year to \$1.00, and affiliated with the National Association,

If we had such an organization of beekeepers here in Michigan, as has been built up in New York, there would be no difficulty in passing the needed foul brood law. As one man in New York remarked to me: "I notice that when we want anything, and we put on the screws through these local societies, we get results."

All that is needed in almost any State, to bring about an organization similar to that in New York, is some capable, energetic, enthusiastic man as a leader-as an organizer. New York has this in the person of W. F. Marks of Chapinville. Where is the man in Michigan who will organize a County association of bee-keepers; then get bee-keepers from adjoining counties to attend, and fill them so full of enthusiasm that they will go home and organize associations, and thus cause the good work to spread from County to County all over the State? Then the matter could be taken up at the State convention, and members urged to organize local associations. If the matter should then be brought before the managers of the farmers' institutes, it is quite likely that speakers from abroad could be secured without expense to the beekeepers. In 1899, Mr. Frank Benton lectured at the meetings of the local Associations of New York. Last vear your humble servant was honored by being selected as the speaker from abroad. This year it is likely that some other man will be chosen. The fact that a speaker from abroad can be secured, is of considerable assistance in organizing a local association.

In Wisconsin, Mr. N. E. France talks bees at farmers' institutes all winter long; although, I believe, this is a somewhat different plan from the talks given in New York by speakers from abroad.

Organization has done considerable for bee-keepers in the way of securing legislation, in the buying of supplies, the marketing of honey, the prosecuting of adulteraters, and defending bee-keepers against persecution by envious and revengeful neighbors, but it can do much more. The season for conventions is now nearly over for this winter, but I hope that my readers will think over what has been said by Bro. Greiner and myself,

and have their plans well laid for more thorough organization another winter.

When each State has a dozen local organizations and a union of these in a State Association, and every Association is auxiliary to the National Association, then, as Greiner says, we can be heard and felt even in Washington.

THE FERTILIZATION OF QUEENS IN CON-FINEMENT.

In taking up this subject, perhaps some of my readers will think that I am foolish, or visionary, or chasing an *ignis-fatuus*. If you wish to see a bee-keeper draw up the corners of his mouth, mention this subject. When this subject was first brought up it was looked upon in all seriousness. Of late it is mentioned only with ridicule. The man who would propose to accomplish anything practical in this line would be classed with the man who is trying to invent perpetual motion.

Seriously, friends, is it wise to discourage attempts in this direction? There is no doubt that there is as much difference in bees as there is in other domestic animals; and the one thing needful to enable us to develop strains of bees superior to those that we now possess, is control of the mating of the queens. Where would our short-horns, Jerseys, Merinos, Poland Chinas and Plymouth Rocks have been now if the mating of these animals had been no more under our control than is the mating of our queen bees? The next great step that we ought to take in apiculture is that of securing control of the mating of the queens. It is of sufficient importance to deserve much careful experimentation.

A Mr. LaVake of Florida wrote me that he thought queen breeders might do away with the sending out of so many mis-mated queens if they would have them mated in confinement. I replied in the usual strain that it had been tried and abandoned as a hopeless task. I asked him to let me know who had ever tried it and made a practical success of it. He gave

me the name of Mr. J. S. Davitte, of Aragon, Ga. I entered into correspondence with him, and from this correspondence I have gathered, arranged and condensed the article that appears upon another The reading of the letters from Mr. Davitte aroused my interest to the highest point. He writes in such a way, and gives details so thoroughly, that he has convinced me of his success. I have spent considerable time in looking up and reading everything that I could find upon this subject. As I look at it now, the principle trouble has been that the drones have not been brought under con-When a drone has been accustomed to soir away through the blue ether for miles and miles, he is not going to be shut up in a little 30-foot tent and be contented. For a long time at least, he is going to spend all of his time in trying to get out. He is in no mood to pay his addresses to a queen. Catch two wild birds at mating-season, and shut them in Do you suppose they would a cage. mate? Canaries have been kept in captivity for many years, and they readily mate in a cage. Mr. Davitte had his drones flying for days in his tent before any queens were released in the tent. Perhaps many of those drones had never flown in the outside air-knew nothing of it. Having flown for several days in the tent they became accustomed to that kind of flight, were in a normal condition, and ready to mate with a queen should one appear.

Suppose we could make a cage two miles wide and half a mile high. Is there any doubt that a queen would be mated inside such a tent? Suppose it were reduced to one mile in width, and one-fourth of a mile high. Don't you suppose it would be a success? Let us go still farther and have it half a mile wide and 80 rods high. Isn't it reasonable to suppose that it might still be a success? The question then is: How small can it be and still be a success? My opinion is that the size is not so very material as it is to get the drones to fly and feel at

home. One large enough for that is, in my opinion, large enough. Mr. Davitte, who has had experience, puts it at about 50 feet in width and 30 to 40 feet in height.

There is still one more point: Not all drones, at all ages, are capable of fertilizing a queen. Many have failed from not understanding this point. have put nuclei, with young queens, into a tent, then caught drones at hap hazard and put them into the tent. of them may have been youngsters, just out of their cradles, so to speak. Others may have been old greybeards. them would certainly have been frightened out of their wits to be caught and shut up in a tent away from their home. think that Mr. Davitte has found the key that will unlock the problem, viz., that of getting drones from a normal colony, that is working undisturbed in the open air, to fly unworried inside an enclosure.

If I had the time, money, bees and opportunity, I should certainly build a mating-tent another season and test the matter to my own satisfaction. By the way, this is the work for an experiment station. To be sure, Prof. McLain did try this experiment, but the conditions were such as to make it of small value. The queen breeder who will build such a tent, and succeed with it, will certainly have one of the biggest advertisements that could possibly be secured for a queen breeder. I wish that some one who is in position to make the experiment, some one like the A. I. Root Co., for instance, would build such a tent and give the matter a Even if it should not prove to fair trial. be the brilliant success that is reported by Mr. Davitte, it might be a start, or a beginning of something, that would eventually lead to success.

Don't let us lose our heads with enthusiasm, nor toss the matter aside with contempt and ridicule. With the new light that we now have on the subject, let us give it careful, thorough trial, standing ready to meet either failure or success.

WORK FOR THE FOUL BROOD BILL.

A bill providing for the appointment of a foul brood commissioner in Michigan has been introduced in the legislature, been favorably reported by the committee to which it was referred, ordered printed, and, possibly, by this time, has passed one house (the senate). John M. Rankin of the Agricultural College has worked hard in the interests of this bill; sending out some 200 or 300 personal letters to bee-keepers urging them to write to their representatives. That these letters have had an effect was noticed by E. R. Root and myself when we stopped off at Lansing while on our way home from the Wisconsin convention. We found an old friend, the Hon. Geo. E. Hilton, at the capitol working in the interests of the foul brood bill. His experience, as related to us, shows that it is almost impossible to pass a bill unless there is some one at the capitol to look after the till. Many bills are killed simply because the majority of the members do not understand the necessity of the measure. To illustrate: I called upon our representative, who lives here in Flint, and asked him if he knew anything about foul brood among "Not a thing," was his reply. talked with him about five minutes, explaining the character of foul brood, how it destroys the brood, allowing the colony to dwindle away until it is so weak that other bees overpower it and carry away the germ-infected honey, thus starting the disease in other colonies. In this way it spreads from colony to colony, from apiary to apiary, and from County to County. Many who keep bees in a small way are ignorant of the character of the disease, and it may gain a strong hold in a neighborhood before its presence is even suspected. Other bee-keepers are careless, and allow neighboring bees to gain access to old combs of infected honey. Other bee-keepers are willful as well as careless or ignorant. What is needed is some one possessed of the necessary knowledge, and clothed with authority, to stamp out this scourge; for it can be cured. The bees can be shaken off into a new hive, and allowed to build new combs, when they will be free from the disease. The old hive can be boiled or disinfected, the combs burned, or melted into wax, and thus the disease is destroyed. If the owner of diseased bees refuses to get rid of the disease, the commissioner is empowered to burn them. There are also penalties for resisting the commissioner, or refusing to get rid of the disease. Not only does foul brood cause a great loss to bee-keepers, but the sweeping away of the bees greatly effects the horticultural interests. Fruits that bloom early, like the pear and cherry, before many insects have come upon the stage, depend almost wholly upon the bees for their fertilization.

Right here my representative interrupted me with:

"I can't see why there should be any opposition to your bill. I shall take pleasure in saying a good word for it, and in voting for it."

The next thing that he asked was:

"Is there any one at Lansing looking after the bill?"

His experience had taught him that bills are not passed unless they are looked after.

A good foundation has been laid for the passage of this bill. It has received the nnanimous approval of our State Association; a resolution having been drafted, endorsed, and sent to the legislature. The bill is in the hands of senator Helme, who is serving his second term and who is well imformed as to legislative tactics. Mr. Hilton has been to Lansing and spent several days clearing It will be rethe way for its passage. membered that Mr. Hilton has passed two terms in the legislature and knows exactly what strings to pull. So far, so good; but now comes the most important part of all. The bee-keepers of Michigan must let their senators and representatives hear from them. There is nothing that will so influence a member as letters from the men who elected him. . If every member should get several letters asking him to vote for this bill, and none opposing it, the bill would be passed. It seems strange that it should be necessary to urge bee-keepers to make a move in this matter; to do so little a thing as to write a letter or two. It may be true that there is no foul brood in your apiary, and none in your neighborhood; but it is spreading, and the time may be nearer than you think when you will wake up some fine morning and find the enemy in your Reader, if I have any influence with you, whatever, let me urge you with all of my power to write this very day, to your senator and your representative. Write something as I talked to my representative, as reported above. Don't stop by simply asking him to vote for the measure, but give the reasons. one, your representative knows nothing whatever of foul brood, but would vote the right way if he were properly inform-It is your duty to inform him. Write to him just as though he were your own brother, and you wished to explain to him why the bill ought to pass.

Perhaps you are not much of a politician—don't even know who is your senator and who is your representative. For fear that you don't know who they are, I am going to publish the whole list of the senators and representatives. They are as follows:

LIST OF REPRESENTATIVES AND THEIR COUNTIES.

Spencer C. Adams	Van Buren
Robert Alward	Ottawa
Dr. J. W. Ames	Wayne
Silas L. Ballentine	St. Clair
Horace T. Barnaby, Jr	Kent
Leonard Baumgaertuer	Saginaw
Iacob Baumann	Wayne
Joseph Edward Blaud	Wayne
Earl B. Bolton	Alpena Dist.
John E. Bonser	Bay
William Boyd	Calhoun
Norris H. Branch	Jackson
David E. Burns	Kent
William B. Bushuell	Branch
Charles I. Byrns	Marquette
Thomas G. Campbell	Midland Dist.
Iohn I. Carton	Genesee
William Chandler	Chippewa Dist.
Ira G. Chapman	Macomb
Sheridan I. Colby	wayne
Iohu H. Combs	Lenawee
Alva H. Corwin	Osceola Dist.
William L. Curtis	.Cheboygan Dist

Orvilla Dannie	Wexford Dist.
D'Allie Dellinia	L'alamazoo
Orville Denuis Edward N. Dingley	Kalamazoo
Charles Dupout Michael S. Doyle Devier M. Fer y Jr. William J. Foster Charles B. Freuch James J. Gee.	Wayne
Charles Dupout	Wayne
Michael S. Doyle	Clinton
Michael M. Boyle T.	Worms
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Charles B French	Monroe
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John W. Holmes	Granot
Fred A Hunt	Wayne
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John Henry John W. Holmes Fred A. Hunt William A. Hurst	wayne
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William KirkLuthe C. Kanouse	Tuscola
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Frank S. Neal	Wayne
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I was unable to get the counties of the senators, but I have given their postoffices; and you can probably tell from that which is your senator. Of the representatives

I have given the county of each. Don't address the members at their homes. Address the senators at the Senate Chamber, Lausing, Mich.; the representatives at the House of Representatives, Lansing, Mich. Do it now. Don't wait until the bill has been passed or else killed. Your letter may be the means of securing the deciding vote.

Since the above was put in type a letter has come from friend Hilton, who has been again to Lansing, saying that the bill has passed the Senate, so there is no necessity for writing to your senators, and I have taken out the list of senators, leaving those of your representatives. I believe it is more difficult to get a bill through the House than through the Senate, so the thing for us to do is to fairly bombard the members of the House. Write to your representative to day.

REAL AND AND A

THE IMPORTANCE OF COURAGE, OR "NERVE," IN BUSINESS.

"Nothing venture, nothing have."

First, the plan must be well thought out and carefully matured. According to our best judgment, beyond all reasonable doubts, all things considered, the plan must be the best that can be devised. Having reached this decision, don't hesi-Strike with all of your might. Bring forth all of the resources of mind, body, and capital. Courage, or "nerve," as it is commonly called, is not the only requisite for success in business, but it is a most important factor. The man who is afraid to venture, who waits for a "dead sure thing," will never become a successful business man. All business enterprises are more or less in the nature of ventures; in fact, there is an element of uncertainty in all things human, and we are given courage and hope with which to meet this condition. Don't think that I advise against the exercise of caution; far from it. In making your plans use the utmost caution, and consider well the difficulties and obstacles that are to be met; but, having decided that a certain plan is best, don't let it fail for the lack of courage to put time, and money, and energy into its development. Its very success may depend upon the courage, and vim, and money, and "git up and git," that you put into it. Let me give an illustration from my own experience:—

When the Review was three years old, I sat one day turning over the pages of the subscription book, wondering why there were so many subscribers who did not renew. Was it because they did not like the Review? If so, what was its failing? Had all of these men gone out of the bee-business? Or was it simply neglect in renewing? for, be it known that, up to that time, I cut off each subscription short and square when the time expired for which payment had been I supposed this would please everybody. As I sat considering the matter, the thought came, why not ask these men why they dropped the Review? seemed an unusual thing to do. would these men take it? Would they be offended? Would they think that it was none of my business why they stopped taking the Review? I believed that I could put the matter in such a way that I would secure their co-operation instead of their resentment. I at once wrote a long circular-letter. There is not room for it here, but the gist of it was that I wished to know why they had stopped taking the Review. I explained that my request was not made in the spirit of criticism, but with a view to assisting in making the Review better, and extending its circulation. I know that no man stopped taking a paper unless there was some reason for it. If the publisher could look behind the scenes, so to speak, and see the real reason, it would be of great benefit to him. I asked to be allowed this peep behind the scenes. Would they tell me exactly why they stopped taking the Review? I asked them to make no excuses; to leave my feelings entirely out of the question; I wanted to know the

truth, or it would be of no benefit to me. If the Review had some fault that could be remedied, I wished it pointed out. If it were simply a case of neglect, that they really cared for the Review, but had neglected to renew, and would like to have their subscription begin where it left off, I would furnish the back numbers at haif price. To show them that the Review still kept up to its high standard of excellence, I sent them a copy of the last issue. That there might be no excuse for not replying, I enclosed a sheet of paper, and a stamped envelope addressed to myself.

Now for the point: When I had figured over the whole cost of thus addressing my delinquent subscribers, I found that it would amount to \$50.00. I may just as well admit that I hesitated; especially as I should have to borrow the money. More than once I came pretty near giviug it up, but I was so sure that a large number of these men would renew if the matter was thus brought to their notice, and that the knowledge of why so many had dropped out would be of benefit to me, that I ventured. I kept an account of the renewals that came in as the result of this venture, until they amounted to \$187.00. Some others came straggling in for months afterwards; and I presume that I got \$200.00 as the result of my outlay of 50.00; besides getting many subscribers back that have since remained with me. Not only this, but I learned why the Review had been dropped in a great many instances. One reason, the knowledge of which has since put hundreds of dollars into my pocket, in fact, probably saved the life of the Review, was that the majority of people prefer to have their papers and journals continued and be allowed to pay for them any time when convenient. A great many wrote: "I didn't stop the Review; you stopped it." It makes no difference what are my personal preferences, if the great majority of my readers prefer a certain plan, if I wish for the greatest success, I must conform to their wishes.

Suppose that I had lacked the "nerve" to spend the \$50.00? Let me give one more illustration:—

Two years ago last summer I cast my eve over into our beautiful, sister-State, Wisconsin, and saw within her borders many manufacturers of apiarian goods. As the publisher of a bee-journal it seemed to be a good thing to visit these manufacturers; and, at the same time visit some of the many excellent bee-keepers of Wisconsin and learn wisdom of their ways. As the result of persistent inquiry I found a manufacturer of cameras that was willing to sell a camera and accept part pay in advertising. Through the help of my friend, Harry Lathrop, I was able to secure transportation on the Chicago, Milwaukee & St. Paul, and pay for the same in advertising. Thus equipped, I made a three weeks' tour in Wisconsin. I took a picture of each factory, visited with the proprietor, learned the strong points in favor of his business, secured a circular, etc. Upon reaching home I had cuts made of each factory, and proceeded to write up an advertisement for each manufacturer, giving each what seemed to me the best points in its favor. All these were put in type. the head of each advertisement was the cut of the factory. There were 16 full pages in all. They were put into a chase, taken down town and put on a press, and proofs taken on nice book paper.

All this was done at a venture. There had been no word of encouragement from the manufacturers. They had no knowledge of what I was doing. I now sent a proof to each manufacturer, showing what I had done, told him what it would cost to have this ad. in the December Review, of which extra copies would be printed and sent out as samples. Of the 16 pages thus sent out at a venture, 13 were ordered printed. The profit on those pages paid the expenses of the trip, and for getting out the extra edition for December, besides leaving me something for my trouble. The manufacturers got some good advertising, I got good pay for my venture, and the Review received a "boom" such as it had never before received. The subscription list in Wisconsin doubled within the next year; and that without my having asked a man to subscribe.

Of what use is to plan such enterprises as these if you haven't the "nerve" to carry them out? I know that it sounds egotistical to write in this strain about my own doings, to make myself the hero of my own stories, but when I write of myself I know what I am talking about, and that I shall hurt no one's feelings; and if any one thinks that I am prompted by egotism, I can tell him that he is mistaken; and that I am going to give one more page of my experience.

Two years ago I became convinced that I knew of a superior strain of bees. I knew that the bees were away ahead of the ordinary run of bees. I decided to advertise them in a manner that should correspond with their merits. I can tell you right now that it required "nerve" to take page, after page, after page, in Gleanings, and I can tell you still farther, that of all the advertising I ever did none has paid me so well as these full pages advertising this Superior Stock of bees. Anybody who has a really good thing, mind you, it must be something good, but it matters not whether it be queens, or bee-hives, or foundation, or what not, can make just as big a success as I have if he has the courage to advertise as I have done. Don't think that I am fishing for a lot of full-page ads. in the Review. Nothing of the kind. There are other journals besides the Review, and you can make a success of advertising without ever patronizing the Review at all. Don't misunderstand me; all advertisements are welcome, but, just at present, I am working to encourage, and stimulate, and inspire my readers, be they bee-keepers or advertisers. To encourage a man to do something is often of more importance than to tell him how to do it. Once more: Plan carefully, go over the ground thoroughly, be cautious, try and think of every point, use your best judgment, but, having made a decision, don't hesitate, don't dilly dally; having put your hand to the plow, don't turn back.

I thought that I had written all that I cared to write upon this subject, but one more illustration comes to my mind: Charley Koeppen, who lived in this town several years, but has now moved to Virginia; had a hard struggle in his early beekeeping days. One poor year followed another, yet he kept on buying bees, and establishing out - apiaries. I remember his buying one apiary, going in debt for it, and not only did he get no honey from it that year, but had to feed several barrels of sugar. People said "Koeppen must be a fool to keep on putting his money into bees when he gets so little out of them." But he knew that there was basswood and clover in the vicinity of his apiaries, and he had the foresight and the "nerve" to keep on investing in bees, knowing that the good seasons would come. In the last three years he has marketed not far from 60,000 pounds of comb honey.

EXTRACTED.

FERTILIZING QUEENS IN CONFINEMENT.

An Account of Some Experiments Made on this Subject a Dozen Years Ago by Prof. N. W. McLean.

Upon receiving and reading the article of Mr. J. S. Davitte, that appears upon another page of this issue, I became greatly interested in this subject, and proceeded to hunt up and read everything that I could find upon the subject. What seemed to me the most trustworthy and practical were some sxperiments make in 1887 and 1888 by Prof. N. W. McLain, then in the employ of the United States government. After describing in detail some methods for artificially fertilizing

queens, so to speak, methods with which he had been successful, but which would, I fear, prove too delicate for the bungling fingers of ordinary mortals, the Prof. said:—

Realizing that natural methods nearly always possess advantages over artificial methods, I determined if possible to gain control of reproduction by the fertilization of queens in confinement. That some inexpensive and practicable method might be devised by which the natural mating of queens in confinement could be secured, has very long been hoped for by all progressive apiarists. Very many attempts, in a variety of ways, some of which involved the outlay of considerable sums of money, have been made, but difficulties apparently insurmountable were encountered.

I removed the queens from 6 colonies which I had had confined in the house for experimenting with bees and fruit-a house to feet by 16 feet, 8 feet high, partly covered on the sides with wire-cloth, a wire-covered sash in the gable, and large screen wire-covered doors in each end. These were strong colonies, which had been confined in this house for thirty days and had learned the location of their hives, and from these the bees flew daily in great numbers, returning frequently to their hives. Into these 6 colonies I introduced virgin queens hatched from cells which I had placed in wire cages. Into each colony the virgin queen was placed without being removed from the cage in which she was hatched. In due time they were accepted and liberated. The day these queens were five days old I liberated about ten drones near to the entrance of each of these hive. drones were brought from hives in the apiary, and upon being liberated most of them persisted in flying against the wirecovered sides and windows in the gable, and few ever entered the hives. again there was frigidity or disability apparent among the drones. When the young queens flew from the hives seeking a mate they mingled among the drones, crawling over them and caressing them with their antennæ, meeting with no response. These queens, with one exception, seemed to have no difficulty in getting the location of their respective

The result of this trial was, one queen of the six was fertilized, and after she had laid eggs with regularity in two-thirds of the cells on both sides of one frame, after clipping the queen's wings, I

removed this frame, with the queen and adhering bees, to a nucleus in the yard, and from the eggs laid in confinement worker bees hatched in due time, and the queen continued to lay as long as the nucleus was fed, there being nothing in the fields for the bees to gather. All the eggs laid by this queen were fecundated eggs. Being convinced that as far as the queens were concerned the difficulties in the way of success were not insurmountable, and that the main trouble was that the drones had not been furnished by the workers with the granular secretion or the food suitable for producing the albumenlike secretion which I had been led to believe essential to produce sexual desire and to assist in the performance of the copulative act, from these same colonies I removed the remaining unmated queens, and to each I introduced another

virgin queen as before.

I then went to a distant apiary, and secured an unusually strong colony which was under the swarming impulse. A few queen-cells were being built and a moderate supply of drones was present. This was late in the season. This colony had not cast a swarm during the year, and was the only one I could find, after considerable search and inquiry far and near, having any drones, and probably owing to the excessive drought only an occasional one of the number examined had been prepared by the workers for the procreative function. I took this colony home and placed it in the wire-covered house at the end opposite that in which the virgin queens were located. I clipped the wings of the old queen so that she could not leave the hive, and upon being liberated the workers and drones of this hive made less effort to escape than those brought in from the apiary near by, and soon seemed reconciled to their new surroundings. The workers soon learned their location and drones were soon to be found in nearly every hive in the house. The result of this trial was that three of the six queens were fertilized, and as soon as they had each laid five or six hundred eggs I clipped their wings and then removed them, and all the eggs laid by these queens produced worker bees. am much encouraged by the success so far realized under conditions so unfavora-

With the return of spring I hope to follow out your suggestions and continue the test, using a large wire-covered inclosure for the purpose; with hives so arranged on the sides that the worker bees may have unobstructed flight, while the drones and queens, being restrained by means of queen-excluding zinc placed before the outside entrance of the hive, may fly and mate within the enclosure and readily return to the hives from whence they came. If practical control of reproduction can be secured by so simple and inexpensive a method—and the facts from my experience as given above seem to warrant the conclusion that this is true then the Rubicon of scientific apiculture is passed.

The next year Prof. Mc Lean continued his experiments by building a large tent of wire cloth, arranging hives in the same as Mr. Davitte did, that is, so that each have was given an entrance both outside and inside of the tent. His tent, its arrangement and management, he describes as follows:—

In order that the laws of heredity and the active principles of selection may be practically and persistently applied in the breeding of bees, I have in obedience to your instructions continued my experiments, striving to discover a simple and practical method for securing control of the natural process of reproduction.

I devised and constructed a fixture, which I call a fertilizing cage, 22 feet square and 26 feet high. Selecting a level plot of ground I set 4 rows of posts, 5 posts in each row, forming a quadrangle. These posts are 4 inches square, and 30 feet in length, set into the ground 4 feet, and exactly 7 feet apart. Four rows of girders, 2 by 4 inches by 22 feet and 4 inches are halved in two and bolted to the inside of these posts, the first row 5 feet from the ground, then the three rows at intervals of 7 feet until the top is reached. The upper three lines of girders are continued from each side of each inside post, forming a brace on each side of each post at intervals of 7 feet, and forming the bearings for the wire-covered frames which cover the top of the cage. The space from the ground to the first girder, 5 feet, is covered with matched lumber nailed to the outside of the posts, leaving a smooth surface on both sides. The upper 21 feet on the sides and the top of the cage is enclosed by wire covered frames 7 feet square, bolted to the girders on the sides, and securely fastened with screws to the frame-work at the

The height of the cage is thus adjustable at 26 feet, 19 feet, or 12 feet from the ground by simply lowering the screen frames forming the top, and the upper row (or two upper rows as the case may

be) forming the sides of the enclosure, the purpose being not only to determine whether queens or drones would mate in this cage at full size, but also how small an inclosure would be sufficiently large to give suitable freedom and range of

flight.

These wire-covered frames are framed like a two-light window-sash, with a mullion in the centre, on which two breadths of wire-cloth meet. Strips of wood secure the edges of the cloth, and cover all joints at the sides of the frames. With the lower board of the siding settled into the ground, and earth filled against the inside, and the door tight-fitting, the cage is bee-tight. I used drab-colored wire cloth, which obstructs the light very slightly. A shelf is fitted against the four sides of the cage on the inside I foot from the ground, and alighting boards directly opposite on the outside. this shelf the hives are placed.

Each hive has an exit cut in either end, and an exit is cut through the wall of the cage registering with the outer exit of each hive, over which, on the outside of the wall, a piece of queen excluding zinc is nailed. These hives are painted strikingly distinguishing colors, as red, white, blue, green, yellow, and black, and a space opposite each on the alightingboards, and a corresponding space on the outside of the wall of the cage are painted in corresponding colors. The colors are repeated in the order named, which separates the hives of the same color a sufficient distance to prevent confusion, and the bees and queens readily distinguish their own hive by means of color as readily as by location.

If the inner exit be left closed for a day or two after a colony is placed in a cage, the worker-bees readily learn to enter their own hive upon returning from the fields. I found that the queens had no difficulty in returning to their own hives after taking flight in the cage. To test that fact I frequently opened a number of hives in succession, and placing the queens upon the palm of my hand tossed them high in the air, when they would

take wing and fly away.

Upon re-opening the hives a few minutes later they would be found upon the combs. The queens and drones appeared to fly and disport themselves with as much freedom and regularity in the cage as they did in the apiary outside. The virgin queens were introduced from the nursery by various methods. Some were hatched in colonies in the cage from cells matured in strong queenless colonies, and some from cells built under the swarm-

ing impulse, which this season could be produced by artificial means only. Mature drones were selected from the hives in the apiary, and also from those returning from their excursions and liberated in the cage, and sealed drone-brood was removed from the hives in the apiary and hatched in strong colonies built up in large hives in the cage, and these drones all flew with freedom and regularity.

This experiment was successful only to a slight extent. Scores of trials were made, but only six queens were fertilized. The Professor used nearly two pages of the American Bee Journal in explaining why, in his opinion, so few queens were mated. Reduced to its lowest terms his views (and, by the way, others hold similar views) are that all drones are not at all times in the proper condition for mating with the queens. Not only must they be of the right age, but the weather, honey-flow, season, etc., must be such that the workers will supply the drones with "that special food suited and intended to produce the desire and capacity for performing the act of copulation, the giving and witholding of which is instinctively determined by the workers, as the present and prospective condition demands." The year in which the Professor tried this experiment is thus described by him:—

From May, 1885, until December, 1887, drouth prevailed, broken only at long intervals by light showers. The succession of two summers of excessive heat and unbroken drouth insured disaster to the present season cumulative in kind and intensified in degree Continuous feeding has been required to keep up breeding and to prevent starvation.

The lack of honey coming in lead the bees to neglect the proper feeding of the drones. The Professor reported that:—

Not one drone in one hundred of those which were fully developed, when held by the legs or wings, or when pressed upon the thorax, was able to perform the expulsion act, and the sex organs of such. with rare exception, contained nothing but a little clear, thin mucous.

The Professor sums up the matter in the following language:—

In the impotency of the drones, almost universally prevalent, I find the reason for the almost total failure of this experiment. The fact that both drones and queens flew with freedom and regularity in the cage, and the fact that in a few cases queens were successfully mated in the cage when but few were successfully mated outside, leads me to believe that under favorable conditions satisfactory success may be expected.

I am unable to find any reports of further experiments in the line by the Professor; and, if my memory serves me right, the experimental work was discontinued the next year, and Prof McLean turned his attention in some other direction.

UNPAINTED HIVES.

Some Decided Objections Against Their Use.

Mr. Doolittle, who is a close observer, has for years opposed the practice of painting hives. I think that he appreciates the appearance of a painted hive, but his objection is that the paint closes the pores of the wood and prevents the escape of the moisture arising from the bees. Others have combated this idea, or attempted to show that no undesirable results followed the painting of hives, but I do not remember having before seen so clear and scientific reasons for painting as those given by Arthur C. Miller in an article contributed to the American Bee-Keeper. Mr. Miller says:—

Mr. Doolittle has for a long time championed unpainted hives, and has supported his cause with much vigor and persistence. Both on account of his having had so many more years of experience than myself, with many more colonies, and his generally thorough and careful observation, I am somewhat loth to take a position antagonistic to him.

For three reasons I object to unpainted hives: First, appearance; second, econo-

my; third, condition of bees.

Generally speaking, unpainted hives go with unpainted buildings, shabby fences, farm implements etc., etc., and I have almost invariably found that where the hives were unpainted, that man did but

indifferently with his bees; in a word, he was "slipshod" in all his work. (I do not imply that Mr. Doolittle is). Well-painted hives encourage an orderly apiary and that helps to maintain a spirit of neatness and care in everything pertaining to the business; and if the constant insistence on this by apicultural writers and honey-dealers is any criterion by which to judge, there is certainly need of wider practice of these virtues.

As to the economy, I maintain that a coat of thin paint each fall is far cheaper than a new hive every little while—I cannot say how often, for I gave up the unpainted business before my hives had a chance to deteriorate much. Besides the saving of the hive there is the economy of stores and vital force of the bees; and this brings us to the third phase of the

question.

Mr. Doolittle's position is that by leaving the pores of the wood open the moisture from the bees will pass out (with mine it all goes out the front door) but he does not say where the rain and water from melted snow will pass to from these same pores when they become filled with it. Let him put on an overcoat and sit out in a good, cold rain and see where the moisture goes and how warm it is inside of it. Then let him try a dry coat and a rubber coat over it, and report. will not feel any moisture inside the rubber coat unless he is exercising rapidly. Had he beneath that coat an automatic ventilating fan, such as the bees have, he would find no moisture there even were he perspiring freely. The bees are in the condition of a human body at rest and they give forth moisture very slowly (though not literally perspiration, more properly exhalation). If they are properly protected and have been in the hive long enough to varnish the inner surface of it so no moisture can get into the pores of the wood from that side, they will be found to have dry combs and to be in a healthy condition in the spring. bees' domicile differs from the rubber coat simile in that moisture cannot reach a chilled surface and condense thereon, but is held in suspension and driven out with the vitiated air by the bees. One of the early operations of the bees in a new home, be it a box, a straw hive or a hollow tree, is to thoroughly varnish the interior, and when they have a box fixed to their liking it will be as tight as a tin can. My bees are prepared as follows:

Double-walled hives with two inches of planer-chips all around, an enamel cloth

mat over the frames and over this a tray with cloth bottom containing two inches of chips. The mat is put on early enough to enable the bees to glue it tight and also to make their own bee-ways above the For over fifframes, if they wish them. teen years I have thus prepared my bees, sometimes wintering upwards of forty colonies, and with a loss of less than one per cent. of colonies so prepared, in all that time. Go to my bees when the snow lies deep and you will find it melted away from the entrances. That shows ventilation enough to suit me and evidently to suit the bees; at least they come out in the spring with dry combs, sound stores

and healthy bees.

Nearly every winter I try some different plan with one or two colonies, and this season have two in single-walled hives, enameled mat and two inches of chips on top of frames, and tarred paper around the outside of hives from the cover to the ground. The climatic conditions are these: Exposed to all northerly storms, with a temperature often below zero, but never for long periods; then a change of wind to the south which brings in warm, moisture-laden air from the gulf streams, saturating everything with Then again, while everything is soaked wet the wind will change and in a few hours all is turned to ice. Generally bees get a chance to fly once or twice each month, though I have known them to be shut in all winter. Under such conditions I prefer a well-painted chaff hive, sealed tight, and only such ventilation as the bees choose to make through the entrance.

LOW RATES WEST AND NORTHWEST.

On February 12th, and on each Tuesday until April 30th, the Chicago, Milwaukee & St. Paul Railway will sell oneway second-class tickets at the following very low rates:

To Montana points - - \$25.00 To North Pacific Coast points, 30.00 To California - - - 30.00

These tickets will be good on all trains and purchasers will have choice of six routes and eight trains via Missouri River each Tuesday. The route of the Famous Pioneer Limited trains and the U. S. Government Fast Mail trains.

All ticket Agents sell tickets via the Chicago, Milwaukee & St. Paul Railway, or for further information address Robert C. Jones, Michigan Passenger Agent, 32 Campus Martius, Detroit, Mich.

FIRE SALE

Of Bee Books!

On January 1st there was a severe fire in our building, burning out entirely four floors above us. The water that was thrown on the fire came down through our floor damaging our stock of books, printing-office, etc. Some of the books were wet slightly, but enough so they could hardly be sent out as perfect. These are the ones that we wish to offer. The reading pages of all are perfect, only the covers being a little soiled. Here they are, with prices postpaid:

Prof. Cook's "Bee-keeper's Guide," only 6oc. Doolittle's Scientific Queen-rearing, only 5oc. Newman's "Bees and Honey," only 4oc.

They are all cloth bound, and latest edition. If you want a year's substitution to the old Week-ly American Bee Journal, with any of the above books, add 75 cents to your order. This is a SPECIAL OFFER, and will last only so long as the slight damaged books last. Better order AT ONCE if you want a bargain. Remember we are

Headquarters for

Bee-Keepers' Supplies.

Catalog and sample copy of the AMERICAN BEE-JOURNAL, FREE. Ask for them. Address

George W. York & Co.
144-146 Erie St., Chicago, III.

I am advertising for B F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

e want to sell you bee-keepers supplies. to give you entire satisfaction. to sell you bee-keepers' supplies.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties-Hives, Sections and Comb Foundation.

Cash paid for beeswax.

1-01-tf

M. H. HUNT & SON, Bell Branch, Mich.

Exhibition Hives.

I shall probably make no more exhibitions of bees and honey at fairs I have too many other irons in the fire. I have about a dozen nucleus exhibition hives that I would sell for 50 cents each. They are nicely made, with glass in one side and wire cloth on the other. Six of them are painted a bright vermillion and the others a bright blue. They are of the right size for taking one Langstroth frame. They cost \$1.00 each to make them.

I also have about 100 of the old-style Heddon super, of the right size to use on an 8-frame, dovetailed hive. This is the best super there is if no seperators are used. They cost 20 cents each to make them when lumber was cheap. They are well painted and just as good as new, but I would sell them at 15 cents each.

W. Z. Hutchinson, Flint, Mich.

Bee keepers should send for our

CATALOG.

We furnish a full line of supplies at regular prices, Our specialty is Cook's Complete hive.

> J. H. M COOK, 62 Cortland St., N. Y. City Please men...on the Review.

MY GOLDEN AND LEATHER - COLORED

Italian Queens

Are bred for business and beauty. queens to the leading queen breeders of the U.S., and have testimonials from satisfied customers in the U. S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

4-00-tf

J. W. MINER, Ronda, N. C.

50 Golden Breeders.

We are wintering 50 absolutely straight fivebanded breeders, 200 fine, select, tested queens, and 500 tested; all reared last fall under the most favorable conditions. Our stock is the very best that money and skill can procure, as proven by our testimonials. We use the best methods, guarantee satisfaction, and give away a large number of valuable premiums.

We want your name and address, that we may send you our free circular which gives valuable information, and tells why we are able to supply the best queens in the world at living prices.

Our Mr. H. H. Hyde will again have charge of our queen department.

Prices, on either Goldens. 3-banders, or Holy Lands, are as follows: Untested, in June, July, Aug. and Sep., one for 75 cts., six for \$4.25; in all other months, one for \$1.00, six for \$5 00; tested, one for \$1.25, six for \$6.75; select tested, \$2.00 each; breeders, \$3.00 to \$5.00. Discounts on large lots.

O. P. HYDE & SON,

N. B. We furnish Root, Hutchinson, Leahy and other breeders, queens in wholesale lots. Let us supply you.

FOR SALE.

Apiary of 40 colonies of Golden Italians, in 10-frame Doolittle hives, together with

fixtures. Everything up to date. Also beautiful buildings, consisting of 8-room, 2-story dwelling, barn and other out-buildings. Peach and pear trees, grapes, etc., in buildings. Peach and bearing. No disease. Healthy climate MildNo better locality to be had than this to those who desire to embark in the bee business. Average yield of surplus honey, 50 pounds to the colony. Photographs sent to those inter-

J. W. MINER, Ronda, N. C.



BEE-HIVES AND HONEY-BOXES,

in car lots-wholesale or retail. Now is the time to get prices. We are the people who manufacture strictly first-class goods and sell them at prices that defy competition. Write us today.



Interstate Box & Manufacturing Co., Hudson,

ODDS and ENDS

ANNAMARAKK

I am about to move to my new house, which is on a small lot with streets on three sides of it, and I shall be compelled to give up the keeping of bees. I have a few odds and ends that I would like to dispose of. I have a two basket, second-hand, Ferris wax extractor that cost \$7.00 when new. I will sell it for \$3.50. I have a new Ferris, single-basket wax extractor, list price \$3.50, would sell for \$2.50. I have a new, Doolittle, solar wax extractor, list price \$3.60, would sell it for \$2.50. I have ten dozen, I-pound, square, flint glass, Muth jars with corks, worth 50 cents a dozen, new, would sell at 30 cents a dozen, There are four dozen of the same kind of jars, only they hold two pounds instead of one and cost 62 cents a dozen when new I would sell them at 45 cents a dozen.

W. Z. HUTCHINSON,

FLINT - - - MICH.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

ROUNDARION

ever made; and he sells it at prices that defy competition! Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of Sections—polished on both sides. Satisfaction guaranteed on a full line of Supplies. Send for catalogue and be your own judge. AUG. WEISS, Hortonville, Wisconsin.

19



01

This is the original one - piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.88; 1,000 for \$3.25; 3,000 for \$8.90; 5,000 for \$13.00; 10,000 for \$22.60.

No. 2 sections are not made to order, but when in stock are sold at \$1.80 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

If the

REVIEW

Is mentioned when answering an advertisement in its columns a favor is conferred upon both the publisher and the advertiser. It helps the former by raising his journal in the estimation of the advertiser: and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

Three Times as Much!



I have recently returned from a trip through New York, where I attended a series of bee-keepers' institutes, or conventions. While at Romulus and Auburn, several bee-keepers told me of the wonderful performances of the bees from a queen that I had sold Thos. Broderick, of Moravia. Mr. Broderick had reared queens from this queen for both himself and a few friends, and nothing in those parts had equaled this strain of bees. Wishing to have the particulars direct from Mr. Broderick himself, I wrote and asked him if he would be so kind as to give them to me. Here is his reply:

Moravia, N. Y., Dec. 31, 1900. Mr. W. Z. Hutchinson, Flint, Mich.

Dear Sir:—It is with pleasure that I write concerning the queen that I purchased of you three years ago, as I have reason to believe her one of the most remarkable queens ever possessed by any bee-keeper in this part of the country.

At the end of the first season, as you may remember, I wrote you my appreciation of this queen, but I will now go more into detail. Upon receiving the queen, May 24, 1898, I gave her to a colony that scarcely covered four Gallup combs. She built up that colony and gave me 140 well filled sections, mostly from buckwheat. This I considered remarkable, as, previous to that time, 75 lbs. was the very best yield that I had ever been able to take from my best colonies.

In the fall, after preparing my colonies for winter, by some accident the super containing the absorbent was knocked out of place, thereby letting the heat of the cluster pass out of doors all winter. They were protected from the wind by a shock of corn fodder, and in this way they passed three months without a flight. They came through the winter somewhat reduced in numbers; but, again the colony built up and gave me a crop of 96 lbs. of well-filled sections.

The past season this colony gave me 48 lbs. of comb honey, which I consider

good considering the age of the queen (four years) and the very poor season.

It was in the season of 1899 that I reared the first queens from this queen. past season the colony from one of those young queens gave me a crop of 174 sections which tipped the beam at 1761/2 lbs. The only thing that I did to this colony in the way of management was that, some time in May, I robbed it of a comb of honey and replaced it with an empty comb. This queen was the only one of this stock that passed the winter in a full colony, all of the others being given to artificial colonies that were formed late in the season. They all wintered finely, although each colony occupied only some five or six Gallup combs.

The past season they all built up and gave me on an average 90 lbs. each of comb honey. My best colony gave me a crop that was three times as large as that produced by the best colonies of my neighbors.

Queens of this strain occupy every comb in the hive, and it makes no difference whether the combs are the Gallup, the Quinby, or the hive a two-story Langstroth. The bees never crowd these queens if given plenty of room. The bees are as gentle as one could wish; cap their honey as white as any bees cap it; and, as workers—well, I can't explain it. It is needless to say that this strain of bees will be in evidence in my apiary as long as I keep bees. You are at liberty to publish this if you wish.

THOS BRODERICK.

To those who are thinking of trying this strain of bees, I would say, don't wait until next spring before sending in your order. Last spring, when I began sending out queens, there were orders on my books for nearly 200 queens. Orders are already coming in to be filled next spring. They will be filled in rotation; so, if you wish to get a queen next spring, order her this winter. The price of a queen is \$1.50; but safe arrival, safe introduction, purity of mating, and entire satisfaction are all guaranteed. The

queen can be returned any time within two years, and the money refunded, and 50 cents additional sent to pay for the trouble.

The REVIEW for this year and twelve back numbers (of my own choosing) and

one of these queens for only \$2.00. soon as your order is received, the back numbers will be sent, and your subscription put on the book to the end of 1901, and next summer the queen will be sent you.

W. Z. HUTCHINSON, Flint, Michigan.

Here we are to the Front for 1900 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. We also carry a complete line of other supplies.

Catalog free. R. H. SCHMIDT & CO., 9-99-tf. Sheboygan, Wis

Place montion the Remain



Honey Queens.

Have you noticed the change in my post office address? I am 200 miles further south when address? I am 200 miles further south; where the peach trees are in bloom, and the bees bringing in honey and pollen. Here is the place for early queen rearing.

Did you know that I am seeking to give my customers the best possible service?

Did you know that I have as good, or

Better Queens,

than can be obtained elsewhere?

Many have found this out, and continue my best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES.

In March or April, tested or untested, \$1.00 each; six for \$5.00; one dozen, \$10.00; breeders, \$2.50 to \$5.00 each. Bees, nuclei and full colonies, for sale.

W. H. LAWS, Beeville, Texas.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queeus, and supplies, and your name on a postal card, will bring you prices of queeus, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

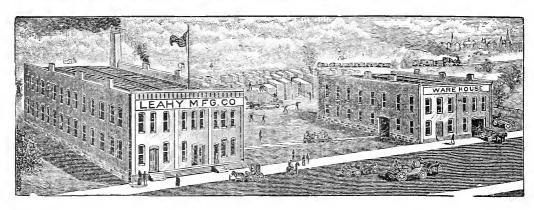
3-99-tf

THE JENNIE ATCHLEY CO..

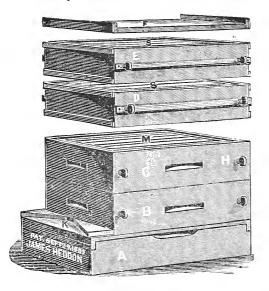
Beeville, Bee Co. Texas.

There is scarcely any condition of ill-health that is not benefited by the occasional use of a R. I. P. A. N. S. Tabule, and the price, 10 for 5 cents, does not bar them from any home or justify any one in enduring ills that are easily cured. For sale by Druggists.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superbindeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bze-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Higginsville, Mo.. East St. Louis, Ills. Omaha, Nebraska.

DADANT'S

Foundation

By the new Weed Process is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1001 is Ready. Send for a Copy; it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world.

G.B.LEWISCO, Watertown, Wis., U.S.A.

Branches:— G. B. Lewis Co., 19 So. Alabama St., Indianapolis, Ind.

Agencies.— L. C. Woodman, Grand Rapids, Mich. Fred Foulger & Sons, Ogden, Utah. E. T. Abbott, St. Joseph, Mo Colorado Honey Producers' Assn.,

Denver, Colorado

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

Marshfield
Mfg. Co., Marshfield,
Wis.

Queens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I am able secure the mating of my queens with drones from the most desirable colonies. ial attention is given to the selection of both queen-and-drone mothers from colonies that show marked industry, and cap their Safe arrival guaranteed, and every warranted to produce light vellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, slie will be replaced, money refunded. shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

JAS. F. WOOD, No. Dana, Mass.

Post Fountain Pen.

The very best in the market; regular price \$3.00, and not obtainable under this price anywhere.



THE SIX CARDINAL
POINTS PECULIAR
TO THE "POST:"

SELECTIONS,
SELECTEANING,
SIMPLICITY.

DURABILITY.

NO LEAKING.





For two new subscriptions to Gleanings and your own renewal with \$3.00; or for one new subscription and your own renewal with \$2.50; or your own subscription will be advanced 2 years, and the pen furnished for \$2.50.

In each case all creats of any must be paid in addition the above ofters being for subscriptions fully in a braneg only. The lieve we can say fruthfully, without feat of contradiction, that no fountain pen ever put appropriate market ever received in so short a time so many unsolicited testimonials from such issuing still men as the POST. The above drawing shows its construction. To fill the POST all you make to I as to dip the nib into the ink bottle, draw out the plunger, and the pen is ready to ruse. Compare this with unscrewing the ordinary style and ordilling with a glass filler As find when wanted. The self-cleaning feature of the POST, as illustrated. will also commend useff. With most pens specially prepared ink must be used or they are of no use, because the concern so grammed up and it is well high impossible to clean, them you sensity digittee about water draw the plumen back and forth like a syringe or squirt gun, and in less than the seconds it is clean and tree for a perfect flow of any ink that may be handy, We will send an request a tew of the many testimonials from noted men in various callings who have written that root you'ds of praise for this most valuable invention. We can not offer the pen-for sale for less than seem but by special arrangement we are enabled to offer it free as a premium with Gle and igo in any of the following combinations. All infeats of any, must first be paid at \$100 a year. Then for says we will send Gleanings for one year, or fell Jan 11 1902 to two names; for one year to yourself, and send you the pen free. For season we will send you the pen, and Gleanings, for one year, and to one new subscriber a year, for \$25, we will send the pen and Gleanings, for two years. If you have ever been disappointed with a fountain pen we assure you that you will not

The A. I. Root Company, Medina. O.



ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times. 10 percent; 6 times, 20 percent; 9 times, 30 percent; 15 times, 40 percent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with-

Gleanings, (new)
American Bee Journal (new) (1.00) 1.75
Canadian Bee Journal (1.00) 1.75
Progressive Bee Keeper (.50) 1.35
American Bee Keeper (.50) 1.40
The Southland Queen(1.00) 1.75
Ohio Farmer (1.00) 1.75
Farm Journal (Phila.)((
Rural New Yorker
The Century
Michigan Farmer (1.00) 1.65
Prairie Farmer (100) 1.75
American Agriculturist (1.00) 1.75
Country Gentleman(2.50) 3.15
Harper's Magazine (4.00) 4.10
Harper's Weekly (400) 4.20
Youths' Companion (new) (1.75) 2.35
Cosmopolitan(1,00)1.90
Success, 1.75

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee - Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

Fancy.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent.; except that a few dealers charge only five per cent. when a shipment sells for as much as one hundred dollars.

KANSAS CITY—We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber 13 to 13¹2; No. 1 amber, 12; fancy dark, 10; white, extracted, 7 to S.

W. R. CROMWELL FRUIT & CIDER CO., Mar. d. 423 Walnut St., Kansas City, Mo.

CHICAGO— Comb honey is scarce; good demand. Fancy white, 16; amber 14; dark, 10 to 11. We can sell white extracted in 60 lb. cans at 7c per lb.

S. T. FISH & CO.,

Mar. S.

189 So. Water St., Chicago, Ills

NEW YORK—The market for both extracted and comb honey is rather dull at present. We quote as follows: Fancy white, 15; No. 1, 14: No. 2, 12; buckwheat, 10: buckwheat extracted, 5^1_2 : beeswax, 2%.

FRANCIS H. LEGGETT & CO.

Feb. 18. W. Broadway Franklin & Varick Sts

CINCINNATI, OHIO—The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for 15 cts.; lower grades do not want to sell at all. Extracted is selling slow; amber sells for 6½ and higher. Fancy white clover brings 8 and 8½. Beeswax 28.

C. H. W. WEBER,

Jan. 14. 2146 Central Ave., Cincinnati, Ohio.

CHICAGO—Fancy white comb honey sells readily at 16, but all other grades are weak at the following range of prices: No. 1 white, 14 to 15; fancy amber, 12 to 13; fair amber grades, 10 to 11; buckwheat, fancy, 10; off grades 8 to 9: extracted, white, ranges from 7 to 8; amber grades, 612 to 712; buckwheat, 512 to 6; Southern, dark, 5 to 6. Beeswax in demand at 30 cents.

R. A. BURNETT & Co.,

Mar. 8.

163 So. Water St., Chicago, Ill.

BUFFALO-Considerable improvement in honey trade, and it is helping clean up-old and dark grades. Fancy light is wanted. We quote as follows: Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 12 to 14; No. 1 amber, 10 to 11; fancy dark, 9 to 10; No. 1 dark, 8 to 9; white, extracted, 7 to 8; beeswax, 27 to 28.

BATTERSON & CO.

Mar. 5. 167 & 169 Scott St., Buffalo, N. Y.

NEW YORK—Comb honey is being well cleaned up on our market. The demand has lessened to quite an extent, on account, we presume, of the high prices which have been ruling. Fancy white still brings 15 to 16c. in a small way; No. 1, white, 13 to 14; amber, 11 to 12; buckwheat, 10. Extracted rather dull and not much doing. Cal. white honey at 7¹2 to 8; light amber, 7, Southern at from 60 to 70 cents per gallon; buckwheat, 5 to 5¹2. Beeswax steady at 27.

HILDRETH & SEGELKEN,

Feb. 19.

120 West Broadway, New York.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS**, Hortonville, Wisconsin.

Send us a list of what goods you want and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

19



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This is the original one-piece section-man who furnishes one-piece sections as follows:—

500 sections, \$1.88; 1,000 for \$3.25; 3,000 for \$8.90; 5,000 for \$13.00; 10,000 for \$22.60.

No. 2 sections are not made to order, but when in stock are sold at \$1.80 per M.

J. FORNCROOK,

Watertown,

Wisconsin.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y



Pacific Queens

Of three - banded, Italian, honeygathering stock.

Circular free,

W. A. H. GILSTRAP, Grayson, 2-01-6t Calif. Stanislaus Co.

— If you wish the best, low-priced —

TYPE - WRITER,

Write to the editor of the Review. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

-If you are going to-

BUY A BUZZ-SAW,

write to the editor of the Review. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.

2nd-

Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coil Wire
61 Section Cases (Wide Frame and tin sep-
arators) at
6 8 Covers at
53 Bottom Boards at
53 Honey Boards, Queen excluding at15
30 Escapes at
50 Feeders (Heddon Excelsior) at 25
30 Alley, Queen and Drone traps. at 35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W. Z. HUTCHINSON. Flint. Mich.

Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States), and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 46	Ky 182	N. C60	
Ark 130	Kans 350	New Mex 26	
Ala 80	La 38	Oregon 104	
Calif 378	Mo500	Ohio 1,120	
Colo 228	Minn 334	Penn 876	
Canada 846	Mich1,770	R. 1 48	
Conn 162	Mass 275	8. C 40	
Dak 25	Md 94	Tenn 176	
Del 18	Maine, 200	Tex 270	
Fla 100	Miss 70	Utah 68	
Ga90	N. Y 1,322	Vt 160	
Ind 744	Neb 345	Va 182	
Ills 900	N. J 130	W. Va 172	
Iowa 800	N. H 126	Wash 128	
		Wis . 500	
	W Z IIIWCIIINCON WILL MIL		

W. Z. HUTCHINSON, Flint, Mich.

INCUBATOR ON 11RIAL

The Perfected Von Culin.

Successful result of 25 years' experience. Scientifically correct. practically perfect. Non-explosive metal lamps.

Double and packed walls.

Perfect regulation of heat and ventilation.

Made of best materials, and highest quality
of workmanship and finish.

PRICES \$7.00 AND UP.

SATISFACTION GUARANTEED OR NO PAY-We make Brooders, Bee Hives & Supplies-Catalog and Price List sent Free.

THE W.T. FALCONER MFG. CO., Dept. Jamestown, N.Y. ë mu

■ 0.90 **■**

BUILDING.

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If you wish to see the picture of a

Dead Bear,

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 and the havoc that he played in one of my apiaries, where he destroyed 52 colonies, and I was lucky enough to kill him, send me 35 cents and I'll mail you the photograph. After I killed the bear I had an artist go and take several views, with the dead bear lying in the ruins. I consider that I have one of the greatest novelties in the way of apiarian pictures. They are 5 x 8 and nicely finished and mounted.

But don't imagine that I have no more bees left. I have some of the very

Best Stock

obtainable. Some of Root's \$200, red clover queen's stock, and some of J. P. Moore's with a tongue-reach of 21-100. Send for circular that will give full particulars and prices.

W.O. Victor,

Wharton, Texas.

Hutto, Tex., April 10, 1900

Enclosed find \$1.75.

Please send me one brass smoke engine. I have one already. It is the best smoker lever used.

Wm Bamber, Of Mt. Pleasant, Mich., has

Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections, frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell Send for samples very close. and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-It

Dittmer's Foundation

Retail-Wholesale-Jobbing.

I use a non-dipping process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, and enable me to sell foundation and

Work Wax into Foundation for Cash at prices that are the lowest. Catalog giving

Full Line of Supplies, with prices and samples, free on application. Beeswax wanted.

GUS DITTMER,
Augusta, Wisconsin.



Mushroons

Spring up in a single night different with queen rearing. That takes years of experience and labor, together with a progressive mind. Nature must be mind. thoroughly understood to make a perfect success. I have had 22 years of scien-tific practice with bees. My strain cannot be excelled in this or any other coun-try. 26-100 is a very "long r ach," but my breeder r ach, but my breeder comes up to it, and is direct from "sunuy Italy." Circular free tells it all. See what Prof. C. P. Gil-

lette, says:-

Mr. A. D. D. WOOD, Lansing. Mich.

Dear Mr. WOOD.—Your letter and the bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they run very uniformly as follows:

Whole reach of "tongne," from base of sub-

mentum to tip of ligula, 26-100 of an inch; ligula alone to the dark mentum, 17-100 of an inch.

There were nine specimens and all their tongues were measured.

Very truly, C. P. GILLETTE.

A. D. D. WOOD, Lansing, Mich.

Please mention the Review.

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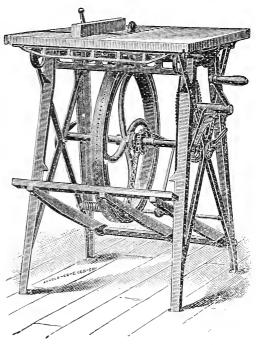
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Devoted to the Interests of Honey Producers.

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W. Z. HUTCHINSON, Editor and Proprietor.

VOL XIV, FLINT, MICHIGAN, MARCH 10, 1901. NO. 3.

HE EDITORS OF THREE OF THE LEADING BEE JOURNALS. BY W. Z. HUTCHINSON.

It is a fortunate fact for the readers of three of the leading bee journals, that their editors are really and truly friends. Instead of wasting their time and energies, and using up space in their journals, in "spats," they all pull together for the good of the pursuit to which their journals are devoted.

When the Wisconsin bee-keepers last met at Madison, these three editors met by appointment at the Chicago, Milwankee and St.Paul station in Chicago, went together to Madison, and whiled away the time on the way by discussing bee journalism—each trying to learn from the experience of the others how he might improve his own journal.

At Madison we three occupied the same room at the hotel; and even went so far as to slip out one morning, unnoticed, and have our pictures taken together, thus enabling me to grace this month's Review by using it as a frontispiece.

E. R. Root was called home from Oberlin college, some 15 or 20 years ago, to help his overburdened father; and, gradually, he worked into the editorial harness, until, at last, he was "given his

head," not only in Gleanings but in the revisions of the A BC book. Mr. Root has had exceptionally good advantages for becoming a first-class bee-keeping editor. He was brought up with the bees, and in connection with the largest factory there is devoted to the manufacture of bee-supplies. If I were to point out his leading characteristic, or, at least, the one that has had a great deal to do with the building up of Gleanings, I should say that it was his affability—the faculty of making and keeping friends. An editor has many times to disagree with his correspondents, but Mr Root seems to be able to do this without giving offense. There is a great difference between telling a man that he is a liar, and explaining to him where he has made a mistake. Mr. Root takes the latter course. Mr. Root was the first bee-keeping editor to make a regular business of traveling about and visiting bee-keepers at their homes, gathering up items of interest and value to his readers; and this course has added greatly to the value and circulation of Gleanings.

About the time that Bro. Root began working on Gleanings, I found G. W. York at work for Mr. T. G. Newman on the American Bee Journal. After working several years for Mr. Newman, Mr. York

had the "nerve" to buy the American Bee Journal. Only a publisher knows what excellent business management there must be to furnish such a paper as the American Bee Journal at \$1.00 a year, but Bro. York has shown himself equal to the emergency. He has imbibed that Chicago spirit of push and enterprise that succeeds where common mortals fail. If I were to point out Bro. York's leading characteristic, I should say it was exactness, or correctness. That disposition that leads one to say "first be sure you are right." And, having decided that he is right, Bro. York sticks to it.

Working so long on a bee journal, attending so many conventions, reading so much bee literature, etc., have enabled Bro. York to become pretty well posted upon things apiarian. He does not, however, possess the advantages that come from years of actual work with bees, but he does possess the rare good sense not to pose as a teacher of those things in which he has had no experience; instead, he calls to his aid those who have had experience; and thus succeeds in making a most valuable journal—one that would be missed, and *sadly* missed, were it to drop out of the ranks.

When it comes to writing of myself the pencil halts. I have written in the Review so much about myself that I begin to fear that it may be proving tiresome; but I would like to say this, that of late I am becoming more imbued with the spirit of trying to help bee-keepers, to be of some real and lasting benefit to them; to arouse, encourage and inspire them; to set them to thinking; to lift them out of ruts; and to lead them to look upon their business as a business. It is all right to tell a man exactly how to perform a a certain piece of work, but sometimes it is of more benefit to rouse him, and set him to thinking out problems for himself. To simply fill the Review, even with good matter, and sell it at a profit, no longer satisfies me; I wish it to lift up, encourage, arouse and help bee-keepers as it has never done before. This discussion

that it has started upon "Wake up beekeepers, to the changed conditions," thus showing bee-keepers how they can better their condition by keeping more bees, is an illustration of what I wish to do.

FLINT, Mich., March 6, 1901.

ORKING ACCORDING TO
THE LOCALITY; AND
KILLING THE QUEENS
EACH SUMMER. BY S.

D. CHAPMAN.

Situated as we are, just half way between the equator and north pole, we have here in the northern part of the lower peninsula of Michigan long, cold winters; and usually it is late in the spring before we get warm weather. We have deep snow, yet the ground never freezes in the woods, and very little in the fields. The snow comes early in the fall, and it is nearly the last of April before it disappears in the forests. Several seasons my bees have gathered their first pollen from elm and soft-maple while there was yet a foot of old snow in the woods. mile and a half east of me we are nearly on the height of the land, and two miles west we are nearly on a level with the lakes. In the winter it is from seven to ten degrees colder on the higher land. Near the lakes we will find, usually, about one foot of snow; ten miles due east of there we will find four feet on the level. Raspberry and basswood come in bloom one week earlier on the low land. That part of the Grand Traverse region bordering on the lake and bays is not as frosty as Southern Michigan or Northern Indiana; but, just in my bee-range, we have early frosts, and the nights become cool early in the season. For this reason I believe in putting my bees in winterquarters quite early in the season—about the 15th of October. Years ago I found that my bees, if left on the summer-stands during our cold and frosty nights, would consume more honey from the 15th of

October to the middle of November, than they would if put in the cellar the 15th of October, and left till the 25th of April. I find from eight to nine pounds of honey will carry a colony of bees 190 days in my cellar. In the last eighteen years, 180 days is the least time that my bees have been confined in the cellar—211 days the longest time.

At the present time I am using the ninth bee-cellar since starting with bees in this vicinity. I do not know as it is necessary for me to tell it, but I will say that in some of these cellars about all I had left in the spring was the cellar. cellar that I now use is under my kitchen. It is 16 x 24, and there are about 200 colonies in it. Some seasons there are a few more; in others, less. It is perfectly dry; so dry that you can not, at any time during the winter, find a drop of moisture the size of a pin head on the under side of the cover that is right over the cluster of bees. I use no quilts nor cushions at any time of the year; and I prefer this kind of a cellar. I can not winter bees in a cold damp cellar; but in a warm, damp cellar I have had them come through seemingly in fair condition. They consume rather more honey, however, and they have not the vitality a colony has wintered in a warm and perfectly dry cellar. If I could hold the temperature of my cellar the latter part of spring to about 45 degrees, I have no reason to doubt that my bees would be in good condition, and not show a sign of disease at the end of eight months of confinement.

I use the eight-frame Langstroth hive. I have had some experience with very large hives, but in our cold climate we can not build up a colony in a large hive so that it can take advantage of the flow from rasberry. With us it is necessary that our bees are confined in just as small a space as possible, with plenty of stores, and just room enough for their present needs. This applies from the time of taking the bees out of the cellar, till the time sugar-maple and fruit-trees come in bloom. From the 5th to the 10th

of May, we usually get our first honey from this source. In this vicinity there are a number of quite large bee-keepers, and every one of them have come to the eight-frame hive. We all work for extracted honey. With my method of management, the eight-frame hive is large enough for the need of any colony of bees I ever saw. And I know my colonies are as populous as it is possible to get with any style or size of hive.

I pay very little attention to my bees early in the spring. As I take them from the cellar, any colonies that seem light in stores are put in a row by themselves, and fed; but I do not break the sealed covers on the others till near the time of fruit bloom. I find that all the time spent in trying to build up very light colonies in the spring is thrown away. If they make a live of it they can be handled to advantage later in the season. With us, the time to build up our colonies so that they are strong in the spring, is during the month of August.

At the beginning of fruit bloom I examine all of my colonies. From all that need more room, those that have brood in six or seven frames, and as many spaces well filled with bees, I take one frame of brood from the brood-nest, selecting the one containing the oldest brood. I shake the bees off in front of the hive, and put a frame containing all worker comb in the middle of the brood-nest in place of the frame of brood I have taken out. I now put on my queen-excluding honey-boards, and leave them on till the close of the season. The reason I take this frame of broad from the broad-nest is that I find the queens will lay much faster in the middle of the brood-nest than they will in the outside combs. This being the case, right in the middle of the brood-nest is where we want our queens to do their work. We are after all the young bees we can get.

Now I will tell you why an eight-frame hive is far the best in building up colonies early in the spring. It is far better to have the brood in six or seven frames in the eight-frame hive than to have the same amount in four frames in a large hive.

The frame of brood that I remove, is put in an extracting super directly over the brood-nest, and the super filled on each side with empty combs. The bees go right to work in this upper story. the weather is warm, and a little honey is coming in I can, in four or five days, take from this same colony another frame of brood. If it is a strong colony I take two. They are put in the extracting super beside the first comb of brood. I take out one or two combs, as I need, that were beside the first frame of brood put in the super, and as the bees have cleaned these combs and put a little new honey in them, they are just right to put in the brood-nest in place of the brood removed. The queen will occupy such combs right away. We must be a little careful not to take too much brood early in the season from the brood-nest, or we may discourage the queen. While our object is to stimulate the queen to lay to her fullest capacity, I sometimes think our best beekeepers do not know just what a queen is able to do, provided the conditions of her colony are just right-and we keep them so for 30 days.

In a short time I take more brood from the brood-nest. This time I put it in another super and set it under the first, or over the brood-nest. At this time I destroy the queen cells that have been started in the first upper story. The bees will not swarm if a dozen queens hatch in the upper stories, but when I extract I shake the bees from these upper stories in front of the hive, and, if there is a young queen with them she will crawl in the hive and destroy the old queen, and I lose the use of a laying queen for eight or ten days just at the time I need her most.

I follow this system of management jnst as long as the bees will be worth anything to me on the raspberry or basswood. We must recollect that there is a certain time during the life of a colony, each sea-

son, when we can build it up faster than at any other time during that season. I expect to find not less than 13, and in some of my best colonies as many as 25, frames containing brood and honey—there is more or less brood in all of them. I think my colonies are 40 per cent. better than they would have been if I had given the queen the two lower stories and let then build up without any of my assistance.

Two years ago I set apart five colonies that were better than the average of the vard, and I gave the queen of each the two lower stories, and let them build up just as suited their notion; adding upper stories and extracting as they needed. With the remainder of the yard (77 colonies) I used my method of management. At the end of the season I had 1Soo lbs. of honey, extra, to my credit from the 77 colonies. This is about 23 lbs. per colony; and I sold this honey at 6½ cts. on board the cars. I tried this experiment in an out-yard, three miles from home. It took one-half day to go to this yard, put brood in the upper stories, destroy the queen cells, and return home. I did this eight times, requiring four days of time, and I had this 1800 lbs. of honey to pay me for my four days' labor. The showing in favor of the 77 colonies would have been much better if there had not been a number that did not amount to much on the raspberry. This is not all; my bees never think of swarming. I am complete master of the situation, under any and all conditions. This alone is worth the four days' time.

During the last three years, raspberry has yielded about the same each season. My best colonies, those occupying four stories, have yielded, each season, from 160 lbs. to 200 lbs. per colony. My three-story hives during this same time have averaged 90 lbs. each; my two-story hives from 20 to 40 lbs.

The wild red raspberry comes in bloom not far from the 5th of June, and it yields continually till near the 1st of August; though it is on the decline after July 15th. The past season it came in bloom the *second time*, and my bees gathered fully five pounds per colony from the 1st to the 1oth of October. This is nothing unusual; though I do not recollect of getting so much honey so late in the season from this source. After my bees were in the cellar there was bloom, green and ripe berries, up to November 1st.

Basswood comes in bloom about the 15th of July; but we have had little honey from this source the last four years. When basswood yields, it is not those extra large colonies that wintered the best, that built up early in the season and gave us such large yields from the raspberry, that prove to be the best on the basswood. Far from it. Those large colonies built rapidly in the spring, but it is impossible to keep our queens laying at their best except for a short time. Though honey may be coming in every day, the bees are getting old, and those colonies are on the decline, while colonies that were lighter early in the spring, have been building up, and, by the time basswood comes in bloom they are able to send out a larger working force of bees that are just the right age to take advantage of the yield from basswood; that is why our lighter colonies prove the best on the basswood. If we are to make a success of any colony we must bring it through the winter in good condition; then we must thoroughly understand our location; and a certain time before the honey harvest we must stimulate that colony to build up as rapidly as possible. Remember, the faster the colony builds up, the more vigorous are the bees; so that the colony is able to bring into action the largest possible force of bees that are just the right age to take advantage of the flow.

From about the first to the tenth of July I kill all of my queens. I have practiced this for 16 or 17 years. I would not go to this expense unless I thought I had some pretty good reasons for doing it; as it takes a day in each yard to hunt them up. Where queens are worked as

I work them they never prove as good the second year. With my management the average life of the best of queens is not over two years. The first year of their life, not one queen in a hundred are superseded. The second year, from 30 to 50 per cent. of them will be superseded in the fore part of the season, just at the time we want a good queen in every colony. This makes a big hole in my honey crop. At the time I kill my queens my colonies are in the very best condition. I am sure of just as good queens as we can get with the most favorable swarming conditions. After killing the queens, for about 25 days, no eggs are laid in the hives. Our colonies are not raising a lot of bees that would be consumers for this length of time. As the brood hatches in the brood-nest the bees fill these combs with honey, leaving the colony in better condition for winter. One of my best reasons for killing the queens is that thereby each colony is furnished with a good young queen to build them up for winter.

Experience and a careful study of this matter will show many more réasons why it is profitable to kill the queens each year in Northern Mich. As I said in the beginning of this article, the time to build up colonies so they are strong in the spring is during the month of August. I use the same method in the fall that I do in the spring, but not on so Near the first of June I large a scale. select from four to six of my best colonies, and in each colony I put in two frames containing largely drone comb, for the purpose of raising drones. not intend to raise any drones except from these colonies, as I use only worker comb in the brood-nests, and if a few drones are hatched they must nearly all hatch in the upper stories, where they soon worry themselves to death or are killed in trying to get through the queenexcluder.

If I wish to run a colony or two for comb honey, 15 or 20 days before the end of the honey harvest I take one or two of these large colonies (they are twice as large as any colony that is run for comb honey from the beginning of the season) and remove the three extracting supers, and in their place I put three section cases. They will fill three about as soon as they will one. In 30 minutes these section cases are filled with bees; and they go right to work. I can take more section honey, late as it is in the season, than I could if I had worked the colonies for section honey from the beginning of the honey harvest; and I have already taken 60 or 80 lbs. of extracted honey before I put on the section cases. They do the work so quickly that we get an extra, No. 1, quality of section honey.

I have told you that my bees do not swarm, and I think I can tell you why they do not swarm. The raising of the brood to the upper stories, distributing it in three or four places, there is no large body of brood in the brood-nest at any time; especially sealed brood. From the time I put up the first frame of brood they have been starting queen cells in the upper stories, and every 10 or 12 days I destroyed them, but during all this time (four to six weeks) they have not attempted to start a queen cell in the brood-nest where the queen is laying. Eleven years ago I used the same management I do at present. That season I killed 140 queens, and over 80 of that number did not start a queen cell in the brood-nest; and the brood was too old in the upper stories. I should have had over 80 queenless colonies had I not discovered it just in time to take cells from those colonies that were raising queens.

I mention this case to show the conditions into which we can bring our colonies; and how slow they are sometimes to even recognize the loss of their queens.

I think these are the reasons why my bees do not swarm up to the time that the young queens hatch; and I think this management has something to do in keeping them from swarming at the time the queens hatch. My bees do not get the swarming fever. When the young

queens hatch, the conditions in the hive are changed; I have put no brood in the upper stories for a week or more previous to killing the queens. If there is a colony in the yard that has the *swarming fever* at the time I killed the old queen, that one will swarm from the 11th to the 13th day, even though I destroyed every sign of a cell at the time I killed the queen, while the others do not hatch a queen till the 14th or the 16th day from the time of destroying the queens.

At the time the queens hatch there is no brood in the upper stories, and I extract the honey closely, so, at this time, there is plenty of room. This is the reason they do not swarm at the time the queens hatch.

I have run my out-yard of 90 colonies the whole season, killed all the queens, and have had but one swarm; and that swarmed at the beginning of fruit bloom before I had put on any upper stories. The swarming fever is a spontaneous impulse, and we can so change the conditions of a colony that it is liable to contract the desire to swarm in 15 minutes. Supposing, at the time the young queens hatch, each colony has a young queen, and most of them have destroyed the queen cells, now,—remove all the upper stories, confining these large colonies to the brood-nest, and I should expect every one of them to swarm. I would have my hands full for a day or two. With these conditions I have known a colony to swarm in 30 minutes after we had brushed the bees carefully from the combs. If we shake the bees from the combs we cover them with honey, and have spoiled the experiment.

Just before the queens hatch I make my increase by division; and it is not at the expense of my honey crop. In union there is strength. I have kept the bees in each colony together till near the end of the honey harvest.

Many of our best writers have frequently told us to always keep our colonies strong. I hardly think this is good advice for our locality. Years ago I would

have given a good deal if they had gone a little farther and told us just how they managed to build up their colonies so they were strong. And now, just for the fun of it, I would like to know, when their colonies are strong how they always keep them so.

It is necessary that every bee-keeper should understand his own locality, and what is best adapted to the requirements of his location.

I have not written this as a pattern for bee-keepers in New York, or California, or any other state, but simply at the request of a few bee-keepers living in Northern Michigan, who wish to try my method of management.

MANCELONA, Mich., Feb. 11, 1901.

STABLISH OUT-APIARIES IN
GOOD LOCALITIES; STUDY

YOUR BUSINESS AND GIVE IT PROMPT ATTENTION.

BY F. P. CLARE.

(The Prize Article.)

Noticing your request for articles from those who have made a success of beekeeping, I herewith submit a few facts for the encouragement of beginners. starting life, 15 years ago, I knew but little of the business; so, like most beginers, made expensive mistakes, and had very meagre success for several years. This was partly due to the location, which is a poor one. Having been rash enough, however, to take a wife, something had to be done to increase the income; and what more natural than to try an out-yard. So, forty stocks were moved several miles away over a very rough road, to a location where I had noticed large quantities of basswood. This paid us so well, that another good location was soon looked up, and then the crops began to count; eight, ten, twelve, fifteen and, one year, twenty-one, thousand pounds of honey were harvested. crops, even at the low prices that have

ruled of late years, have placed us where our yearly interest will now keep us in comfort.

How all this has been brought about would fill a small book, but may be summed up in few words: Prompt attention to business. Of course, I have studied text books, have devoured the conteuts of the Review and Gleanings for many years, and have been helped (I shall never know how much) by articles from the pens of such men as Heddon, Hutchinson, Doolittle, Taylor, Miller, etc., but, after all, it was the increased number of gatherers that told the tale.

Were I starting life again as a young man I should (and my advice to every young man in the ranks is) look up good locations, and start out-yards. tration in the secret of success. Don't try half a dozen different lines, but get to the top in one. Gird up the loins of your mind, and give the business to which you are called, or have chosen, your best thoughts and all the energy of your be-Be in earnest. But this is not enough; you need knowledge; this means study, reading the best journals, and visiting about among men who are making a success of the business. You need a center to work out from; this means a good wife and a home.

In locating, have an eye to good markets, shipping facilities, both by mail and boat. Good roads and good neighbors are very important, as well as church and school-privileges. Begin at the foot of the ladder and climb. When I started here, fifteen years ago, with 60 hives of bees, a good, safe wintering-house, with sawdust walls two feet thick, was the first thing. Then a lean-to 10 ft. 6 inches x 14 ft. was where I started life; yes, and brought my wife, three years later, till we got our present home livable.

Don't go in debt. What you can not pay for go without; and so you will never know what it is to be harrassed with debt, and burdened with interest.

In locating out-yards, the first and most important matter is honey yie

flowers. If possible, look up a location where willows, soft maples, alders, etc., abound, or, at least, are within reaching distance; as these furnish the first honey and pollen in the apiary. Then we need raspberry, clover and basswood and fall-flowers; and if in a locality where buckwheat is grown largely, so much the better.

If possible, locate with one who owns the land; as moving bees is an unpleasant job. Select a plot of land nearly level, or sloping to the south or southeast; see that the cellar is both warm and dry; or a house that is; as, unless you master the wintering problem the business will be a losing game every time. You will need a cellar in which to winter the bees, and a room in which to extract the honey and store the supers in the winter. If this is not to be had it can be built. A lean-to 6 ft. 6 inches x 13 ft. has given me ample accommodation for the past ten years; costing, perhaps, two or three dollars. As to the rent, make the best bargain you can. Draw out a lease in writing, so that you are secure. I am at present giving one dollar per month for half an acre of land, fenced, with an old house on it, and a cellar under it, and think this reasonable.

In managing out yards, clip all queens in May; marking those hives that have queens two years old; as these are the ones that will swarm to renew their queens. Do this for them by raising young queens from your best stock in the home-yard, a little in advance of the swarming season. Raise the hives up off the bottomboard half an inch in front, and give plenty of room in supers, always a little before it is needed. This system of management will keep the bees contented, and, so, able and willing to do their best for their keeper.

In building up the weak colonies in the early summer, I take sealed brood from those colonies having it in the *upper stories;* thus, always keeping the strong ready to take advantage of any honey flow, while I am getting the weaker ones

ready for the main flow in July. With this system of management we harvested 21,000 lbs. of honey, five years ago, from 140 colonies, spring count, and increased to about two hundred. One yard of fifty colonies gave us 10,000 lbs. of extracted honey.

I have said nothing about hives, size of frames, etc., as, while these have their place, (and we all have onr favorites) good crops can be secured in any, or 'all, of the standard hives of to day, if *location and management are right*.

Produce what your market calls for; this will be both comb and extracted. Some customers will want comb, and some extracted—please both. Bottle nothing but first-class honey. Furnish this to the grocers around you to sell on commission; as many will sell in this way who would not purchase outright. Call all your wits into play, and remember, it is as honorable to sell honey as to sell wheat or potatoes. Give good weight, and you will soon work up a good trade, and get retail prices for your goods.

RIDEAU CENTER. Ont., Feb. 26, 1901.



AST AND PRESENT CONDITIONS; AND HOW TO MEET THE FUTURE. BY C. P. DADANT.

Mr. Editor—I am in receipt of your request for an article on the subject of "changed conditions," mentioned in the January Review, and I am quite willing to have a say on the matter, because it is in the line of our experience.

When I was a boy, from 14 to 20, my father was trying to establish a large apiary, from a small beginning. As I grew, the apiary grew, and the "two" colonies of 1864 numbered over a hundred in 1870. At that time we were taking the greatest pains with the bees. Honey was high; wholesaling at 28 to 30 cents per 1b. in St. Louis. In 1870, the

year of the big fire, Perrine, of Chicago, yet paid us 18 cents per lb. for clover extracted honey, in barrels. It was worth our while to take good care of the bees, and every colony received the closest attention.

Foundation was not in existence, and, as my father knew the great value of empty comb, whether new or old, he sent me about the country every winter, or rather every spring, at the end of winter, to buy up all old combs we could find. These could be had for a trifle; and I remember how astonished some old fashioned bee-keepers were to see us buy up broken comb so readily. They thought they were getting rid of a worthless lot of stuff at good prices, and we, on our side, knew we were buying the comb cheaper than the bees could build it. The drone comb was carefully sorted out of these old combs, and rendered up, but every particle of worker comb was put into frames for the use of the bees; and I believe I could yet, to-day, find some frames full of comb made up from 15 or 20 different pieces; for each seam in a repaired comb shows as long as the comb is in existence, and I know we have some of those old combs yet.

There was not a week during the dull season, and not a day during the good season, the honey season, that we did not do something or other in the apiary. We took special pains to rear our queens from the best stock, as we were anxious to improve it, and what we wanted was a race of prolific bees.

About 1871 or 1872 we began to enlarge our scope by putting out apiaries right and left; one at a time, however, and beginning with 40 or 50 colonies in each place, while keeping about 100 at home. But it was not until about 1878 that we began to really do well with a good number of out-apiaries and enough bees in them to keep a man busy without putting on the bees as much care and attention as we had given them at the start. About 1882 or 1883, it became necessary to have a special man at the bees, and since that

time we have been with them but little ourselves, owing to having so many irons in the fire that we could not do everything personally.

But the change in conditions of which you speak, did not take place for us, until about 1891, or 1892. Till then we had realized good prices for our honey. Previous to 1890, I believe we sold little if any honey at less than 10 cents per prices began that time Aftei to decrease, and we sold several crops at from 5 to 7 cents. Even at these prices it will pay to keep bees in out-apiaries, if one manages it right. Of course, if you have to rely solely on hired help you cannot expect the work to be done as well as if you did it yourself. prices could have stayed where they were in 1880-89 there would have been a fortune in bee-culture, for we realized from 10 to 12 cents per lb. During the season of 1884, with something like 400 colonies, we cleared, labor and all expenses paid, about \$2,800 out of our honey. wax of the cappings was sufficient to pav for the labor of extracting.

As to the change in crop-conditions, we do not find it very great. If things have become less favorable in one way they have become more favorable in A great deal of the pastureanother. land that used to be altogether in blue grass is now in clover, whenever the winters are not too severe, or the summers We have seasons of bloomscarcity, but these have been seen at all times. There is probably less basswood, but there are more blossoms in the stubbles. A good season for blossoms will still give us a good yield as ever. Besides, there are more orchards, therefore more early bloom to help the bees.

Now which pays better? One apiary run with greatest care, or a number of apiaries run with less attention? I think the answer must depend upon the circumstances of the owner of the bees. A man who teaches school nine months of the year may make a very good success with one apiary, if he runs it as he runs h

school, with attention to every detail If he pays no attention to details, my opinion is that he is fit neither for a school teacher nor for a bee-keeper. But a lawyer, a doctor, a clergyman, who would make a success with one apiary, might not succeed with two or more.

But if one has the time, a good horse, and above all a good bee location, one will surely succeed best with three, four, or even five apiaries, run, as the editor suggests, for extracted honey; so as to avoid swarming. But here, Mr. Editor, permit me to come back to Dadant's hobby, large hives. I know that many others do not agree in this, but if I insist, it is because my experience in the past, with hives of different sizes, has all been in favor of large hives. On the large hives I saw the large crops, as a rule, and the least number of natural swarms.

I say that you must be in a good bee location, because there is so much difference in results between a good location and a poor one. Here, again, is a result of experience, which may be of use to others. We have an apiary on the home farm, which has never yielded as much as others in more favorable locations, and we have apiaries from five to twelve miles away, which have averaged fully from one-third more, to double the crop of the home bees. Were I to start in life again, with the experience of the past, I would locate in a more suitable place for bees.

As to the man who has not made a success of one apiary, I would not want to advise him to try a greater number; unless his failure had been due to his other occupations preventing him from taking the proper care of his bees.

Can one make bee-culture pay as a special pursuit? Yes, *emphatically!* And I think we may depend upon our American bee-keepers to find it out. If we can get from 6 to 10 cents for honey, one year with another, there is money in it. But, of course, we cannot expect to take as particular care of every colony as we used to do, when honey sold at 20 to 30 cents.

But I don't think our bee-keepers need to be waked up. If you want to wake up somebody, you had best go over to Europe, and help the hundreds of practical, educated, progressive men over there wake up the millions of sleepy peasants, who are resting in the rut of old customs. The trip that I made in Europe the past summer has convinced me more than ever that America can keep her place in the lead, for her people are not asleep, as compared to other nations.

HAMILTON, Ills. Feb. 13, 1901.



EED OF A BETTER UNDER-STANDING AND PRACTICE OF THE LAWS OF HERED-ITY. BY A. C. MILLER.

My dear Mr. Hutchinson—The Review for February was received to day, and,



as usual, acts as a torch to my gunpowder; and here I am exploding. Before I dissipate into clouds of fluffy smoke, let me remark that you may find this rather long for a letter. It is not intended as an article for publication; although, of

course, if you find matter in it which you wish to use you may do so; provided you use the editorial blue pencil vigorously on all personal parts. Forewarned is forearmed.

"Fertilization in confinement." Bravo! I am more than glad that you had the courage to take up that matter. I don't doubt but what Mr. Davitte is correct.

When Mr. Larrabee was in charge of the Michigan (?) Experiment Station, I sent to him details for some trials very close to those of Mr. Davitte's. Mr. Larrabee submitted the matter to the "powers that be," but said powers declined to authorize it, and it never was tried.

Now please note the difference in the plans; I proposed a cloth enclosure through which the bees could not see; the using of bees (drones and workers) which had never flown outside of an enclosure, and then feeding to the colonies specially prepared food. Notice this: The German bee masters have for many years used a mixture of milk and honey, and of egg and honey, as a stimulative food for spring use. I proposed to use small colonies from which I could pick any undesirable drones if I saw fit to do so. The combs of these colonies were to be filled with the prepared food, and the bees were to have no other. This is why: We know that well fed drones are more active than those poorly nourished; we also know that an abundance of rich, stimulating food causes great muscular and nervous activity in all the animal creation; and this is particularly true of the organs of reproduction. Hence the special food heavily charged with nitrogen-the drones were bound to get it-can't get any other. I had experimented just enough along this line to give me faith in its correctness.

Now you may pass this idea along to whomsoever you see fit. We have *got* to control the male element if we are to advance in thorough breeding.

In Gleanings for Feb. 1, page 85, H. L. Jeffrey has an article on the value of breeding stock, to which the editor appended some rather surprising comments. I wrote a somewhat caustic article, and sent it to Gleanings, and it should appear by March 15. The substance was this: The authors of our text books, and the editors of our journals, (look out) appear to be grievously ignorant of the laws of heredity, and of all such authors as Darwin, Huxley, Haeckel, Spencer, and a host of other biological authors. Now, if our instructors are ignorant, what wonder that the rank and file do not advance in scientific queen breeding? Prof. Cook refers to some of the above mentioned

authors but not in this connection. The revised Langstroth has a brief (and misleading) foot-note on in-breeding. Cheshire, Simmins, Alley, Doolittle, and "A B C," all ignore the subject completely. Is it any wonder we do not get ahead? Bah! Scientific queen breeding, forsooth. "Breeding queens," "Golden breeders," etc. Rot. Please excuse my vehemence, but I feel strongly on the matter.

Here is a little comfort for you: Darwin says (Variations, Vol. 1, page 360, and Vol. 2, page 307) that "The hive bee is the least variable of all domesticated animals." Not much encouragement. But listen: To these laws of heredity, broadly stated, and, like all laws, seeming to have exceptions, crossing, like any other change in the conditions of life, tends to cause variation.

The male varies more than the female. The male is the stronger element in begetting offspring. (Example—The offspring of reciprocal crosses, i. e., male of No. 1 and female of No. 2, for one cross, and male of No. 2 and female of No. 1, for the other cross, will, in each case, show most strongly the characteristics of the sire. There are hosts of other examples.)

Under such conditions it is little short of marvelous that we have made the progress which we have. As I view it, the only thing we have done, actually accomplished, is to cause the bee to vary. Variation once started seems to run riot unless fixed by scientific breeding-in. For an example of this, look at the pedigrees of noted trotting horses. It is all a deep and fascinating subject; but, above all, it is of vital importance to us as bee-keepers. I believe it should be talked and written about, and hammered at, until the whole fraternity is alive to the importance of the matter.

Can you do better than to get some of the scientists, such as Prof. Cook, and others holding similar positions, to write you a series of articles setting forth plainly the general and well recognized laws of heredity, without going into the scientific discussion of the "why," or probable "why"—for those are deep and troubled waters. Then get those of them who are fitted for it to give a set of general directions for developing and fixing points of value. Apropos of the "long tongue," study up Variation of Homologous Parts. I tried to get E. R. to see the need of looking for long, narrow heads and pointed mouth-parts, in this connection, but he didn't see it. Guess I didn't make myself clear.

Don't you think it worth while for you to throw all the power of the Review, and the weight of your championship, into this matter?

Mr. Gilstrap's remarks on the progress of the bee-keeping pursuit is a view from another side of a topic on which I have just sent out two articles; one for the May issue of the American Bee-Keeper, and one for the April Progressive.

Comparing our pursuit with many other lines of industry, we discover that we have almost stood still ever since Virgil's time. Don't you believe it? us see; we have invented some half dozen mechanical devices of much convenience (but what is any of them compared with the discovery of artificial incubation, for example?) By the efforts of some scientific gentlemen—a few of them amateur bee-keepers—we know definitely some things about parthenogenesis, and about diseases of bees. Also something about the growth and food of the bee. what do we know about the true cause of swarming, queen supersedure, of acceptions or rejection of alien queens, of injury to queens sent by mail (see April American Bee-Keeper), of a thousand and one things connected with the daily life of the hive bee? I say that of these we know nothing, absolutely nothing. Oh yes, we have books full of all sorts of guesses, but that isn't science; that isn't progress.

Am I stirring up a hornet's nest? Very well, it needs stirring. No wonder the National government fails to establish

and support an apicultural experiment station. What use for such a station have we ever shown to the department, other than some experiments in foundation and on the relation of bees and fruit? We have got to wake up. Help us.

PROVIDENCE, R. I., Mar. 7, 1901.

[Of what use is it, friend Miller, for us to understand the laws of heredity and breeding, unless we can control the mating of the queens? To study those now, would be like putting the cart before the horse. Let us bend our energies to the solving of the first step in the problem. There is little doubt that both Prof. Mc-Lean and Mr. Davitte have succeeded in securing the mating of queens in confinement. Let us go at it and confirm or disprove their statements. Let us make a practical success of controlling the mating of queens, and the Review will be fast enough to secure the desired information in regard to how we shall breed for the desired results.—Ed.]



HE INFLUENCE OF LOCALITY, AND THE IMPORTANCE OF HAVING STRONG
COLONIES AT THE PROPER

TIME. BY G. M. DOOLITTLE.

I do not think I ever read any one number of any bee-paper from which I obtained so many precious things to



think about, and to store up for future experiments, as I did from the Review for January 1901. Surely, the Review begins the twentieth century in grand style and practicability. I would like to touch on

many of the points made in that number,

but will confine what I have to say to the one editorial, found on pages 18 and 19, under the heading of "The Influence of Locality." That editorial, alone, is worth more to the bee-keeper who thinks, than the price of every bee-paper in the world for a whole year. And were I to say just what I thought, it would be that there is in it the essence of all that is necessary for successful honey production, outside of the secretion of nectar by the blossoms which give us our honey harvest. And I can give no better advice to all than to tell them to put that editorial up in the most conspicuous place possible, where it can be referred to every week during the year, if necessary, till all that it contains (and it embraces might, mind and matter enough for years of bee-keeping) is as familiar as a nursery rhyme, being at our "fingers' end" during all of our manipulations with bees, in our locality. I have contended for what is in that editorial for more than a score of years, but never got anything I had to say where it was boiled down to be so comprehensive as given by Bro. Hutchinson. The older readers will remember how there was a rage throughout the whole country a score of years ago for early brood rearing, and a strife to see who could induce their bees to arrive at a point strong enough to swarm And how some carried the earliest. their colonies into warm rooms during nights and cool spells; how others placed hot bricks and irons in the caps of the hives nights; and still others buried their hives, all but the entrance, in heating manure, etc., resulting, as a rule, in finding out that some colony not so treated would be the first to swarm, after all. And when asked for an advantage, gained by way of early brood rearing, (could perfect success be obtained in this way) above their being a winner in the strife, not a single one could be given, except by meeting the question with "it is better to have our colonies always strong." To this latter answer, I objected; claiming that a colony strong enough to swarm,

in central New York, on the first day of April, was a positive waste of time, material and numbers; the whole thing looking toward a loss when the main honey flow And the "knowing ones" thought Doolittle a fool. But I have rived to see many of those who opposed, change their minds, and am glad to say that, at the present time, the wisest among us know that to meet with the best success, we must raise our bees with an eye toward the main harvest of honey in our locality; that we can have the maximum amount of bees on hand just in the right time, so that countless thousands may work with the proper energy and zeal, having their whole "thought" absorbed in amassing as much possible of that harvest into the hives while the flow is on. If the main harvest of honey comes early in the season, as does white clover, then bend every energy to bring the bees to countless thousands, with energy and zeal to meet that early flow. If the flow is from basswood, then work for that, by holding them back a little the first of the season, but "rushing" them a little later. If from buckwheat, or fall flowers, hold them back still later in the season, and equalize, till finally you bring all up to the countless thousands with energy and zeal, just as the flow from buckwheat begins. There are no conditions which I know of where it pays to have strong colonies during the whole season, except where a locality furnishes a continuous flow of nectar during the whole season. And there are very few localities which so furnish. Perhaps I better keep still, but I could not help saying a few words by way of emphasizing that editorial, so that readers of the Review would not forget it too soon. And, in closing, allow me to thank you Mr. Editor for that editorial, and say that your experience with Carniolan bees, is just like mine.

BORODINO, N. Y., Feb. 9, 1901.



PICKLED BROOD was produced by Mr. N. E. France by taking honey away from the bees, and resorting to a sort of mild starvation. It was cured by feeding.

"WAKE UP BEE-KEEPERS to the changed conditions," is proving a most profitable topic for discussion. Upon no topic that I have taken up for discussion have I received such excellent, helpful articles. I can give only a few of them in this issue; but shall give more in the April issue, although there may not be room for all of them. There are several points upon which I wish to have a little more to say, but I think I better reserve my comments until all of the articles have been printed.

In Uncapping, have a strip of wood IX 2 inches in size fastened across the top of the uncapping can. In the center of the strip, from the under side, drive an eight-penny nail up through the strip, allowing the point to project above the wood far enough to afford a resting place for the end-bar of the frame of the comb to be uncapped. Upon this point the comb may be tilted to any desired angle, and quickly reversed for uncapping upon the opposite side, without lifting the comb. This arrangement also prevents the frame from slipping about while the comb is being uncapped. This plan was described by F. Minnick at the Wisconsin convention.

KEREKEKEE

FINDING QUEENS is sometimes difficult in populous colonies of blacks or hybrids. In such cases it is sometimes advisable to "sift" the bees, so to speak, by running them through a queen-excluder. Here is a plan described at a York State institute by Mr. D. H. Coggshall. Fill a hive with

empty combs, set it upon the stand of the colony containing the queen that is to be found, setting the colony to one side. Put a queen-excluding honey-board upon the top of that. Now take the combs, one at a time, from the colony, and shake the bees into the empty hive. The bees will at once run down upon the empty combs below, and the queen is easily found upon the top of the queen-excluding honey-board.

BARRELS may be tested as to whether they will leak by blowing, or forcing air, into a hole in the head; but there is a peculiar knack in doing this. One breath alone will not test the matter. lips or mouth close upon the aperature, and blow in all the air that can be expelled from the lungs; draw in another breath through the nostrils, still holding, with the lips, the pressure obtained by the first breath; blow in another breath; hold this and draw in another. Perhaps a part of the third breath may be forced into the barrel, but that is about all. Hold the pressure. If there is a leak, the pressure will soon run down, and the ear may detect the sound of the escaping air. If there is no leak, the pressure will remain; and upon removing the mouth the air will come out of the opening with quite a decided explosion. These directions were given at the Wisconsin convention by Mr. N. E. France.

NAME AND PARTIES.

THE BEST ARTICLE that was ever published in the Review, it would be difficult to point out. I doubt, however, if very many better ones have been published than the one by S. D. Chapman, that appears in this issue. It is somewhat lengthy, but not more so than is warranted by the magnitude of the subject. There is more in that article than appears on the surface. The exact methods described may not be suited to many readers, but the thoroughness with which the writer has studied out the conditions of his locality, and devised a system of man-

agement adapted to those conditions, furnishes an encouraging example for us to follow.

I met Mr. Chapman for the first time at our late Michigan convention. He is a quiet, middle aged man; but I noticed that he always spoke to the point, and always made a point; and as I began to get these points down in my notebook, I noticed there was a relation between them; in short, that he was following a system peculiarly his own; and I immediately went over and secured his promise to write it out in detail for the Review. It is with pride and satisfaction that I ask you to read this article, and ponder well upon the lesson that it teaches.

STAPERSTANT

DEATH OF BRO. YORK'S FATHER.

It was only a few short weeks ago that I returned home from laying away to their eternal rest the mortal remains of my own dear father, and now I see, by the last American Bee Journal, that Bro. York has just returned from a similar sad journey to his old home in Ohio. Bro. York is one of a family of seven children, all grown up and in comfortable circumstances. Bro. York says that his father believed in giving his children a fair education, and an ability to look out for themselves, rather than to leave them financial wealth, and that he was wise in so doing.

A NEW EDITION OF THE ABC OF BEE CULTURE.

I have to thank the publishers, the A. I. Root Co., Medina, Ohio, for a copy of the latest edition of that splendid work, The A B C of Bee Culture. The editions of this book follow one another so closely that it is difficult to say something new of the work upon the appearance of a new edition. It is one of those very few books that are always up with the times. Let the publishers print two or three thousand, or even eight or ten thousand, so great is the demand that a new edition

is soon called for. Each edition is preceded by a thorough revisal, bringing the matter fully up to date. E. R. Root is the one who now does the revising; and no one has better opportunities for knowing what is passing in the apicultural world. Once more let me say, no beekeeper, be he amateur, professional, or novice, can afford to do without the A.B. C. of Bee Culture. There is scarcely a phase of bee culture, certainly nothing of importance, upon which the latest information can not be found in this book.

YELLOWZONES.

I am going to do something I have never done before, and may never do again, and that is, to recommend, through the Review, a medicine. Its name is "yellowzones," and it is manufactured by Dr. W. B. House, of Detour, Michigan. The doctor is "one of our folks," so to speak. He is interested in bees, a subscriber to the Review, and is, I believe, the one who wrote the glossary in Root's A B C of Bee Culture.

Yellowzones are not a secret prepara-The doctor tells exactly of what they are composed, and if you wish to consult with your own physician before using them, you can do so. A sample box was sent to us a month or two ago; and, as good fortune would have it, came the very day that Mrs. Hutchinson was down with one of her severe headaches. For years she has been afflicted in this way, and we had never found anything that would stop them-once the attack commenced it had to run its course. Within ten minutes after we began giving yellowzones the pain eased off and she went to sleep. A week or two later I was awakened by neuralgia of the stomach. I lav quiet hoping it would go away, but it gradually became more severe. Finally I slipped out of bed and took a vellowzone. The pain ceased instantly, and I dropped off to sleep as though nothing had happened. Since then, I am satisfied that by the use of Yellowzones I warded off an attack of La Grippe. I am not very much in favor of "doping," it is better to so live that there will be no need for medicine, but with the environments in which some of us live, it is well nigh impossible to entirely avoid the use of medicines, and when their use does become necessary, we wish those remedies that will "do the business," Yellowzones are "hot shot" to pain and fever. If you wish to know more about them, write to Dr. House. Let me close by saying that Dr. House knows nothing of this notice that I am giving his medicine—he will probably be the most surprised of any one who reads it.

THE LENGTH OF BEES' TONGUES.

Mr. Adrian Getaz has a most excellent and conservative arricle in the American Bee Journal on this matter of measuring and comparing the length of bees' tongues. In the first place, he thinks, just as I have thought, that there could not be so much variation as has been reported-from 13-100 to 23-100 of an inch. He calls attention to the fact that other parts of bees' bodies do not greatly vary in size, and asks why should the tongue? He characterizes the present method of measuring as lacking in exactness. He says that a bee's tongue is elastic-can be stretched. The present method is to chloroform the bees, which causes the bees to protrude their tongues. They are then measured. Mr. Getaz suggests that all bees might not thrust out their tongues to the same extent. He would not have us discard the present method, but would use a glossometer to verify the measurements made by the use of a micrometer. The glossometer is simply a shallow trough covered with wire cloth, and having an inclined bottom. It is filled with honey and set in the upper story of the hive containing the colony with which we wish to experiment. Of course, the longer the tongue-reach of the bees, the deeper they can reach for the honey; and the depth to which it has been removed shows on the inclined bottomboard. This method seems a little lacking in exactness; that is, it seems as though the instruments might vary a little in construction, or might not always set exactly level, etc., besides, they could not well be used on specimens of bees sent in by mail for measurement. I do think, however, that it might be a good thing to employ two kinds of measurement, thus having one act as a check upon the other.

In this connection, Mr. Getaz thinks that we make a mistake when we say that the use of comb foundation can not be employed in such a manner as to influence the size of bees. He thinks it possible that a slight increase in the size of the worker cells might lead to an increase in the size of the bees; and an increase in size would also mean longer tongues.

EXTRACTED.

SUGAR HONEY.

A Few Words From Prof. Cook on This Subject.

I presume that most of my readers remember the sugar-honey discussion of ten or a dozen years ago, and that it was cut off right in its height because beekeepers (perhaps wisely) decided that it was not a proper subject even for discussion. In deference to the wishes of the majority the subject was dropped from the columns of the Review; there being only occasionally the slightest reference to it. Occasionally it is touched upon briefly in the other journals; for instance, in the last American Bee Journal, Prof. A. J. Cook, in giving a most excellent criticism of the ABC of Bee Culture, has the following:—

Page 126—"You could feed white sugar so as to produce very nice looking honey, but it would be sugar syrup in honeycomb after all, as you would find to your sorrow if you would attempt to sell it as honey." This is simply not true, as one experiment will satisfy anyone if he will but try it. I believe in telling the truth

even if it confronts the prejudices of the whole bee-fraternity. Mr. Abbott at the last National convention stated and reiterated this untruth. If Mr. Abbott will feed his bees pure granulated sugar syrup and then taste of the product, he will find that it is certainly honey and not sugar syrup. It surely lacks any aroma which might be secured in the nectar of flowers, but it will have decidedly the taste of honey, and will be preferred by many to any other kind of honey, as I have proved more than once. Yet it will rarely if ever pay to do this even if there were no prejudice against it, and in view of the prejudice it would certainly be un-Let us talk, however, of its nonprofitableness, and of its unwisdom, and not state what we can all so easily prove is not the truth. I was brought up to believe that untruths never pay, and I have never yet seen reason to believe otherwise.

Some quite interesting things have come to my ears in the last three or four years regarding sugar honey, but to repeat them would be telling tales out of school.

APICULTURE AT THE PAN AMERICAN.

An Interesting Letter from the Superintendent of the Apiarian Department.

I presume that many of my readers are already looking forward to a visit to the coming Pan American Exposition, and wondering what they will see there in the line of our beloved pursuit; and I am pleased to say that Gleanings, with its characteristic enterprise, has secured from Mr. O. L. Hershiser, who is Superintendent of the Apiarian Department, a few hints of what may be expected. Mr. Hershiser says:—

My dear Mr. Root:—Answering your note of January 25th, regarding the Pan-American, the whole matter might be summed up in a single statement, to the effect that there will be here presented greater opportunities for instruction, amusement, and the cultivation of taste for the beautiful, than have ever before been afforded at an exposition in the western hemisphere, and, according to the statements of persons well qualified to judge, the architectural and landscape effects of the Pan-American will make it

the high-water mark of the expositions of the world. This is a broad statement, but one which the facts support; and when we consider the elegant symmetry that has been studiously observed in the grouping of the buildings and laying-out of the grounds, the pleasing and harmonious color effects of the exteriors as well as the interiors of the buildings, the novel and beautiful Spani-h architecture, and the elegant landscape, the claim seems to be merited.

Judging from present indications the apiarian exhibit will not be least among the many novel and instructive attractions. It promises to eclipse everything in this line ever attempted, and this notwithstanding the general shortage in honey production in many localities within the United States and Canada during the

past two years.

This exhibit will be a veritable wonderland, not only for apiarists but for that larger class of users and consumers of honey. It is designed to make this exhibit educational as well as entertaining, to the end that the fallacies affecting the pursuit of apiculture may be, as far as possible, rectified. A model apiary will be in operation to show, in a practical way, just how both comb and extracted honey are produced. Exhibits showing the relation of bees to horticulture will be a prominent feature, and the mistake of spraying fruit-trees when in bloom will be demonstrated, as well as the absolute necessity of the presence of bees during the season of bloom in order to make horticulture, in any sense, a paying pur-Vast quantities of both comb and extracted honey, prepared in the most attractive and appropriate forms for market, will be shown. It is safe to say that this most interesting feature of the ϵ xhibit will include the nectareous products of all valuable honey-plants to be found within the Americas and the island possessions of the United States. There will be a complete and exhaustive display of manufactures in which honey forms a component part, and beeswax and the many and various manufactures there-A distinctive exhibit of honeyplants, as a part of the general outdoor-growing horticultural and floral exhibits, is contemplated. There will be several large and attractive exhibits of apiarian supplies, comprising specimens of all approved hives and every tool, device, and preparation needed in the pursuit of apiculture.

Several State and Provincial exhibits are already assured, and others are under advisement. It may also be stated that

individuals, no matter where situated within the Americas, have an opportunity to exhibit their apiarian manufactures and products. One person in this class proposes to install an exhibit comprising a carload of 30,000 pounds of comb honey, and it is expected that there will be others of great magnitude, especially from localities noted for large honey production of honey of a standard and uniform grade, as is the case with the alfalfa of Colorado, the sage of California, and the basswood of Wisconsin. Many of these, as well as some State exhibits, will be of the present season's honey harvest, and will not be installed before the middle of July to the middle of August; but application for space should be made early, in order that it may be provided.

Apiculture is accorded a prominent place in the exposition, and a special building, in an excellent location, will be provided for the apicultural exhibits, the extent and size of which will be commensurate with the needs and desires of the bee-keepers who will exhibit. Mr. F. A. Converse, Superintendent of live stock, dairy, and agricultural products, is deeply interested in this important branch of rural husbandry, and the apiarists are most fortunate that their interests have fallen under his excellent supervision.

SLOW COOLING OF BEESWAX.

The Views of the American Bee-Journal, and Some Comments Thereon.

The American Bee Journal of Feb. 21 quotes the last Review-editorial on this subject and then says:—

All of which goes to show that there is no particle of difference in actual belief on either side. Our good friend of the Review wants us to say that different samples of beeswax have different colors independently of the amount or kind of dirt in them, so that there may be a very dark color in wax that does not come from impurities. If Mr. Hutchinson will turn back to the first number of this journal for this year, he will find on page 4 this sentence: "There is no desire whatever to deny that two specimens of wax entirely free from impurities may be very different in color." If he had kept in mind that sentence, he would hardly have said, "But it still clings to the idea that the dark color of wax comes from its impurities," for that conveys the idea that

all dark color comes from impurities. There is no real difference as to belief at that point.

Let us get right down to where the point of divergence comes. Take Mr. Hutchinson's last illustration—some bright yellow wax melted with a lot of dirt stirred in and suddenly cooled. make the illustration clearer, suppose a lot of lampblack is stirred into the wax. We both believe exactly the same thing about it. We both believe that the wax that is in the cake, separated from the foreign particles, is bright yellow, and that although no yellow color appears to the eye, the black color is entirely due to the lampblack that is there. When asked, "What is the color of that cake of wax?'' he says, "Yellow;" we say, "Black." Of course, he may say that it isn't the wax that is black, but the lampblack. But we believe our answer is more in accordance with the every-day talk of people. Put the cake of wax before a witness in court and ask him its color. He looks at it on the outside, and then breaks it in two, and he testifies that it is black outside and in. Take a white handkerchief and rub soot all over it. Hutchinson would say, "The handkerchief is white. The soot only is black." Common people would say, "The handkerchief is black."

If Mr. Hutchinson should contract for a lot of bright yellow wax, and when it arrived he should find it one-fourth dirt, he would hardly feel satisfied if the consignor should say, "That's bright yellow wax, just what I contracted to send you;" neither will he be satisfied if he is told that a fourth will be deducted for the dirt.

Referring to the issue of this journal for Jan. 17th, the American Bee-Keeper says:

"Editor York now asserts that his journal has never pretended to claim for slow cooling anything more than that it allowed the foreign particles time to settle."

We do not believe that Editor Hill is a man who would intentionally misrepresent, but that statement, "now asserts," might be understood to mean that some change had been wrought in the views or the statements of this journal. So far from that being the case, it is true that precisely the same assertion was distinctly made in this journal the first time any editorial belief on the subject was given, as Editor Hill will see if he turns to the issue for Nov. 29th.

Mr. Hill then asks, "Why, then, has the Journal so emphatically opposed our assertion that slow cooling has nothing to do with rendering dark wax a bright yellow?" Simply because the assertion is not believed to be true.

Let us see if we can express, in as few words as may be, just what we do believe. The most of the wax in this country is of a bright yellow if properly cleansed, but when rapidly cooled, as is likely to be the case with the inexperienced, it has mixed in it more or less foreign particles that give it a dull or dirty color. If allowed a long time in cooling, it will be kept a long time in that liquid state suitable for the settling of the foreign particles, and thus the dirty-looking wax will become bright yellow.

Although I am not positive, it is my opinion that lamp-black would color the wax *itself*. Wax used in making artificial flowers is colored different colors—red, pink, green, etc. The very substance of the wax itself is colored. I think an admixture of lamp-black with wax colors the wax *itself*. I doubt if wax colored with lamp-black could ever be restored to its orginal color.

Such particles of dirt as we naturally find in beeswax do not color the wax itself, and are seldom present in sufficient numbers to practically effect the color of the wax. To be sure, I should not like to buy dirty wax, let the color be dark or yellow, but this isn't to the point. The point is that the dark wax is dark, and the yellow is yellow, (not only yellow in *itself* but yellow in appearance) and that regardless of the presence of dirt.

In his last paragraph Bro. York says: "The most of the wax in this country is of a bright yellow if properly cleansed, but when rapidly cooled, as is likely to be the case with the inexperienced, it has mixed in it more or less foreign particles that give it a dull dirty color. If allowed a long time in cooling, it will be kept a long time in that liquid state suitable for the settling of the foreign particles, and thus the dirty-looking wax will become bright yellow."

Here Bro. York reiterates again the very point on which we have been arguing, viz., that the slow cooling of dark

wax will make it a bright vellow. No; he doesn't say dark wax, he says "dirtylooking," come to look again. If Bro. York will go just a little farther, and say: "The slow cooling of dirty wax will allow the dirt to settle," no one will dispute Where he is "off" is in assuming that the presence of these foreign particles gives the cake of wax a dark color. If he will take some of the cakes of dark wax that come to his office, melt them, and keep the wax in a liquid state a long time; he will find the effect very similar to that of washing a darkey boy's face it may be cleaner, but the color is still there.

Don't misunderstand me. I am not opposed to the slow cooling of wax. It is the proper way to get the foreign particles out of it, but it is *not* their presence that makes wax dark, or gives it a dark appearance. That's the point.

BOTTLING HONEY.

Liquefying, Bottling, Labeling and Selling.

Many bee-keepers are asking what to do in connection with bee-keeping. Where the man is adapted to the business, and the circumstances are favorable, the selling of honey combines well with its production. From the time the bees are packed away for winter until they are again filling the air with their music, their owner is left free to do what he pleases; and, as I have already said, if he is adapted to the business, and the conditions are favorable, he can profitably employ this time is selling, at retail, the honey that he has produced during the summer-may even find it profitable to buy to sell again after his own crop has been sold. Quite a number of bee-keepers are making money bottling extracted honey and furnishing it to retail dealers. As with everything else, success is largely dependent upon how the work is done; and, as I have before remarked, Gleanings has taken pains to secure and publish accounts and descriptions of the methods by which these men have succeeded. Any one who is especially interested in this subject ought to read these articles in Gleanings. I have already copied a part of one of them, but I have just read another that is so full of excellent hints, suggestions and advice, that I feel it space well occupied to copy the most of it. It was written by Mr. J. C. Wallenmeyer, who composed the song "Queenie Jeanette," dedicated it to his best girl, then married her, and now he is getting his reward—she is his best helper. Mr. Wallenmeyer says:-

I have bottled honey from alfalfa, basswood, willow-herb, white clover, California sage, Florida mangrove, saw and cabbage palmetto, wild aster, and smartweed (or heartsease) mixed; dry-weather honhoney-vine, and fall flowers. For containers I have used pint and quart Masons, costing 50 and 60 cts. per. dozen, 5 and 8 oz., and 1 and 2 lb. square flintjars, costing \$5.70 and \$7.50 per gross (corks included); 13 and 16 oz. jelly-glasses; ½-gallon fruit-tablet jars costing 5 cts. cach; lard-buckets; glass bowls, and Root's No. 25 round flint-glass one-pound jars—quite a variety to select from.

I found Root's No 25 jar the best and quickest seller of all, because, after being emptied, it could be used as a selfsealer for jelly, preserves, jams, etc.; only flint-glass jars should be used, as they show the honey off to perfection. Amber honey will sell nearly as well in quart Masons on account of the universal use of the package; but it is hard to sell 3 lbs. of honey to every-day consumers. Most people prefer a small cheap package. Our market demands a honey of light or light amber color, heavy body, mild flavor, and fine bouquet or aroma. It does not pay to bottle a poor grade of honey. The people generally get accustomed to the kind of honey produced in their own locality. I found this out to my sorrow when I tried to sell three barrels of mangrove and palmetto honey from Florida, although I thought it fine, indeed. This matter of selection is very important. If you happen to run short of honey, and must buy, procure an article as near like your own as possible. I have found, just as friend Pouder says, that patrons grow suspicious when they get different honey. I find honey from white clover, dry - weather honey - vine,

and fall flowers, to give the best satisfaction for bottling in my locality. Briefly stated, there are three essentials for success in bottling honey:

1. Best quality of well-ripened honey. 2. Neat, attractive package, useful when

empty.

3. Aggressive selling methods.

You might have the very finest honey, but if it is not put up attractively it will not sell. You might have a poor article put up in a showy, gaudy, labeled package, but no one will buy a second time. Again, you may have a fine article of heavy body and fine flavor, put up in the right kind of package; but if you leave it at home, what good will it do? Be up to date; be aggressive; talk honey everywhere. I built up an enormous trade in the fall of 1894 with a well ripened crop of honey from dry-weather vine and fall flowers. I controlled at that time a large portion of the drug trade in Evansville, and, probably half of the gro-cery trade. I bought 5 bbls. of Root's No 25 1-lb jars and one gross each of the 5-oz. and 8-oz. square flint Muth jars, and 5 gross of 1-lb. and 3 gross of 2-lb. Muth jars, all at one time. I had every kind of package to please the most fastidious. sold both the 1-lb. square and round jars at \$2.00 per dozen, to retail at 20 cents. The 5 bbls. of No. 25 jars were gone in a jiffy, while I have nearly all of the 5 and 8 oz. jars yet. These I use at fairs to give away as samples. I often sold a dozen of the round jars to house wives who wanted a set for jelly, etc., but never sold more than one or two of the square jars at one time to any lady. They are considered worthless when empty, although my wife likes them for small pickles and catsup. I use the No. 50 label, costing \$1.75 per 1000 for both round and square 1-lb. jars. This label is showy, and will not soil easily in fly time. find the 2-lb, square jar an easy seller to persons who mix their own cough medicine every winter.

I have now dwelt at length on the merits of various packages, as I think it a very important item to help sell our honey. I forgot to say my worst-selling package was the tin lard-bucket; Mr. R. C. Aikin notwithstanding. They may be all right to sell to old customers; but the main objection is that people can not see the contents unless it is opened. To get new customers to buy your honey, invest 5 cts. in a glass "show-case." As honey is not a staple, instruct the grocer to place conspicuously, and you will have the pleasure of selling both "show-case" and

honey at the same time.

We will now proceed to the process of Have your honey liquefied, if bottling. candied, holding the same at 150° for two or three hours. By using a gasoline-stove you can regulate to a degree, almost. sure not to over-heat it. It will stand 170 to 180 for a short time, but I prefer not to risk losing the aroma and injuring the delicate flavor. If you are compelled to buy honey, always buy in 60-lb. tin cans, as they are more convenient to handle. While you are liquefying your honey, wash your bottles, using clear soft water with sal-soda and shot to remove dirt and particles of glass if new. Then rinse in clear water, and place bottom upward in racks to drain. This will make flint jars clear and sparkling. I did use a ten-gallon filling-can, bought of friend Muth, but now prefer to use my extractor (with cross-arm and basket removed), raised to a convenient height. I prefer to bottle honey hot, as it runs quicker, retains its aroma, and will stay liquid long-Have the rack er than if bottled cold. containing empty jars at your left. the pan under the honey-gate to catch any drippings. You will soon learn how to cut off the flow just right the first time. Pass the jar to an assistant at the right, who presses the cork (cost 75 cts. per gross) in the mouth, then dips the jar into melted wax and paraffine, half of each. A second assistant puts on the tinfoil (costs 75 cts. per gross) in place; winds a capping-strap around the jar with the right hand; then holds the jar with the left hand, running the head up and down on the strap until the cap is nicely smoothed down. A pasteboard, about 12 x 20, covered with dextrine (costs 10 cts. per lb.) is covered with la-She lavs bels in front of the operator. the jar down flat, deftly catches the label by the corner, removes it from the board, attaches it to the center of the jar, smoothing it out with a soft cloth; then she places the jar in the case at the right, holding a dozen each.

After a little practice, three persons can easily fill, cork, wax, tinfoil, label, and pack 800 lbs. a day, and not spill a drop of honey, by this method. The corks used for honey-jars are seconds, and ought to be covered with wax to effect an air-tight sealing while the honey is hot.

Now, then, we are ready to sell. Tog up a bit; for if you will notice you will see that all successful salesmen are well dressed and well groomed. Take a sample jar of each kind, and go to your grocer. If he is busy, see if he has any honey in sight. Don't attempt to sell to him while he is busy. If he is not, tell

him you have a fine article of honey, fine flavor, and good body; that the crop of honey is very short this year, and you will not have very much to sell. If you tell him you have five tons he will expect to get it for nothing. Hold your jar to the light; turn it upside down to show how thick it is; talk honey, talk business, and stick right to him. Have one price for everybody. It will pay you to allow a good margin of profit, and he will then try to make more sales than if he made a very small per cent. of profit. But be sure to have your honey placed where every one can see it on entering the store, as people hardly ever ask for honey unless they see it. I visited friend Pouder several times, and the steady stream of customers was evidence that he understands the art of bottling and selling honey to perfection.

Remember, in conclusion, that he who tooteth not his own horn, the same shall

not be tooted.

I usually liquefy on a gasoline-range. Two 60-lb. cans are placed in two common wash-boilers, then filled with water, and heated gradually. After all the honey in the can is liquefied it is drawn off into a Root's Novice extractor-can (with the baskets and crank removed), by means of a rubber liose, the can being covered to prevent foreign substances lodging therein. I had a Muth ten-gallon filling-can, but I like the extractor better as it has a much larger honey-gate, which is very essential in rapid filling. If the honey is cold, the flow can not be cut off a third as fast; therefore with honey at about 140 to 150° Fa., and a large honey-gate, we attain the maximum of rapidity in filling. Besides, I found, at least in my experience, that, in filling with cold honey, a large number of airbubbles formed, thus preventing our getting the desired amount in the bottles. It would also run over the sides when heated to the right degree.

Of course, no one would attempt to seal until the bubbles had risen to the surface, which they will do in a few minutes with hot honey. If the honey is then sealed, and either dipped or corks sunk, and any kind of good sealing-wax poured on, thus effecting a hermetical sealing, the honey contracts when it gets cold; thus causing the much-talked of vacuum, especially if a tinfoil cap is properly applied, making it absolutely air-

tight.

I found, only the other day, a 2-lb. Muth jar which had been waxed, that candied, while others on the same shelf, sold to the grocer the same day (Oct. 5, 1900),

were nice and clear on account of the tinfoil cap. I find that if, after sealing, the jars are left in a warm room, thus preventing the too sudden cooling on the corks, we shall have no cracks. If one-half paraffine is added to the wax it will not crack nearly as easily, besides being much cheaper.

LOW RATES WEST AND NORTHWEST.

On February 12th, and on each Tuesday until April 3oth, the Chicago, Milwaukee & St. Paul Railway will sell oneway second-class tickets at the following very low rates:

To Montana points - - \$25.00 To North Pacific Coast points, 30.00 To California - - - 30.00

These tickets will be good on all trains and purchasers will have choice of six routes and eight trains via Missouri River each Tuesday. The route of the Famous Pioneer Limited trains and the U. S. Government Fast Mail trains.

All ticket Agents sell tickets via the Chicago, Milwaukee & St. Paul Railway, or for further information address Robert C. Jones, Michigan Passenger Agent, 32 Campus Martius, Detroit, Mich.

Buy a Belgian Doe and Litter.

The best and cheapest way for a beginner to start, is to buy a good doe with a litter five or six weeks old. We now have 200 does with litters, and they are going at prices asked by other large breeders for a DOE ALONE. Our specialty is DOES WITH LITTER OF YOUNG—proven breeders. Fine does of en prove worthless BREEDERS, and some dealers dispose of them to the other fellow. The young that go free with our does will be worth twice the purchase price when they are 6 months old. This makes the safest and most satisfactory proposition for a beginner. Authentic pedigrees with all hares sold. We are the largest breeders of thoroughbred Belgians in Central U. S. We guarantee satisfaction on all shipments; and our guarantee is good. Book giving history and complete information; also book of pedigree blanks given to each purchaser. Write for descriptions and prices.

AMAZON RABBITRY,

Michigan City, Indiana.

A. I. ROOT CO., 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight.

FIRE SALE

Of Bee Books!

On January 1st there was a severe fire in our building, burning out entirely four floors above us. The water that was thrown on the fire came down through our floor damaging our stock of books, printing-office, etc. Some of the books were wet slightly, but enough so they could hardly be sent out as perfect. These are the ones that we wish to offer. The reading pages of all are perfect, only the covers being a little soiled. Here they are, with prices postpaid:

Prof. Cook's "Bee-keeper's Guide," only 60c. Doolittle's Scientific Queen-rearing, only 50c. Newman's "Bees and Honey," only 40c.

They are all cloth bound, and latest edition. If you want a year's subsription to the old *Week-ly American Bee Journal*, with any of the above books, add 75 cents to your order. This is a SPECIAL OFFER, and will last only so long as the slight damaged books last. Better order AT ONCE if you want a bargain. Remember we are

Headquarters for

Bee-Keepers' Supplies.

Catalog and sample copy of the AMERICAN BEE-JOURNAL, FREE. Ask for them. Address

George W. York & Co.
144-146 Erie St., Chicago, III.

I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

e Want to sell you bee-keepers supplies. to give you entire satisfaction.

For these reasons we deal in **Root's Goods**, both wholesale and retail.

Our specialties-Hives, Sections and Comb Foundation.

Cash paid for beeswax.

1-01-tf

M. H. HUNT & SON, Bell Branch, Mich.

Exhibition Hives.

I shall probably make no more exhibitions of bees and honey at fairs I have too many other irons in the fire. I have about a dozen nucleus exhibition hives that I would sell for 50 cents each. They are nicely made, with glass in one side and wire cloth on the other. Six of them are painted a bright vermillion and the others a bright blue. They are of the right size for taking one Langstroth frame. They cost \$1.00 each to make them.

I also have about 100 of the old-style Heddon super, of the right size to use on an 8-frame, dovetailed hive. This is the best super there is if no seperators are used. They cost 20 cents each to make them when lumber was cheap. They are well painted and just as good as new, but I would sell them at 15 cents each.

W. Z. Hutchinson, Flint, Mich.

Bee keepers should send for our

CATALOG.

We furnish a full line of sapplies at regular prices. Our specialty is Cook's Complete hive.

J. H. M COOK, 62 Cortland St., N Y. City

Please men...on the Review

MY GOLDEN AND LEATHER - COLORED

Italian Queens

Are bred for business and beauty. I furnish queens to the leading queen breeders of the U.S., and have testimonials from satisfied customers in the U.S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

4-00-tf

J. W. MINER, Ronda, N. C.

50 Golden Breeders.

We are wintering 50 absolutely straight fivebanded breeders, 200 fine, select, tested queens, and 500 tested; all reared last fall under the most favorable conditions. Our stock is the very best that money and skill can procure, as proven by our testimonials. We use the best methods, guarantee satisfaction, and give away a large number of valuable premiums

We want your name and address, that we may send you our free circular which gives valuable information, and tells why we are able to supply the best queens in the world at living prices.

Our Mr. H. H. Hyde will again have charge of

our queen department.

Prices, on either Goldens. 3-banders, or Holy Lands, are as follows: Untested, in June, July Aug. and Sep., one for 75 cts., six for \$4.25; in all other months, one for \$1.00, six for \$5.00; tested, one for \$1.25, six for \$6.75; select tested, \$2.00 each; breeders, \$3.00 to \$5.00. Discounts on large lots.

O. P. HYDE & SON.

Hutto, Texas.

N. B. We furnish Root, Hutchinson, Leahy and other breeders, queens in wholesale lots. Let us supply you. 1-01-t f

Your subscription paid one year to the Progressive Bee-Keeper upon receipt of your first order for ½ dozen queens.

Every bee-keeper knows the worth of

A Good Queen,

knows the worth of a good strain of bees, also knows how worthless is a poor queen and inferior bees. Our bees rank with the first, and queens stand second to none.

Choice, tested, Italian queens, \$1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed. Send for price list. J. W. K. SHAW & CO., Loreauville, La. 3-91-tf

SOME REASONS WHY

Our comb honey sections are superior to those of other manufacturers. We are located in the basswood region in Wisconsin, and are able to select the naterial. We have it sawed especially for us in the winter time when the logs are frozen. This makes white lumber. We keep it white by piling it under sheds before it is water-soaked by the heavy summer rains. We have it sawed from bolts cut just the right length from second growth basswood. We have no waste in cutting. We make cut just the right length from second growth basswood. We have no waste in cutting. We make melon and cabbage crates from the dark boards. We are making boxes on the same principle as the comb honey sections; and that experience enables us to cut a V-groove that will fold easier, break less, and hold longer, than any other section on the market.

INTERSTATE BOX & MFG. CO., HUDSON, WIS.

Three Times as Much!



I have recently returned from a trip through New York, where I attended a series of bee-keepers' institutes, or conventions. While at Romulus and Auburn, several bee-keepers told me of the wonderful performances of the bees from a queen that I had sold Thos. Broderick, of Moravia. Mr. Broderick had reared queens from this queen for both himself and a few friends, and nothing in those parts had equaled this strain of bees. Wishing to have the particulars direct from Mr. Broderick himself, I wrote and asked him if he would be so kind as to give them to me. Here is his reply:

MORAVIA, N. Y., Dec. 31, 1900. Mr. W. Z. Hutchinson, Flint, Mich.

Dear Sir:—It is with pleasure that I write concerning the queen that I purchased of you three years ago, as I have reason to believe her one of the most remarkable queens ever possessed by any bee-keeper in this part of the country.

At the end of the first s ason, as you may remember, I wrote you my appreciation of this queen, but I will now go more into detail. Upon receiving the queen, May 24, 1898, I gave her to a colony that scarcely covered four Gallup combs. She built up that colony and gave me 140 well-filled sections, mostly from buckwheat. This I considered remarkable, as, previous to that time, 75 lbs. was the very best yield that I had ever been able to take from my best colonies.

In the fall, after preparing my colonies for winter, by some accident the super containing the absorbent was knocked out of place, thereby letting the heat of the cluster pass out of doors all winter. They were protected from the wind by a shock of corn fodder, and in this way they passed three months without a flight. They came through the winter somewhat reduced in numbers; but, again the colony built up and gave me a crop of 96 lbs. of well-filled sections.

The past season this colony gave me 48 lbs. of comb honey, which I consider

good considering the age of the queen (four years) and the very poor season.

It was in the season of 1899 that I rear-

It was in the season of 1899 that I reared the first queens from this queen. The past season the colony from one of those young queens gave me a crop of 174 sections which tipped the beam at 176½ lbs. The only thing that I did to this colony in the way of management was that, some time in May, I robbed it of a comb of honey and replaced it with an empty comb. This queen was the only one of this stock that passed the winter in a full colony, all of the others being given to artificial colonies that were formed late in the season. They all wintered finely, although each colony occupied only some five or six Gallup combs.

The past season they all built up and gave me on an average 90 lbs each of comb honey. My best colony gave me a crop that was three times as large as that produced by the best colonies of my neighbors.

Queens of this strain occupy every comb in the hive, and it makes no difference whether the combs are the Gallup, the Quinby, or the hive a two-story Langstroth. The bees never crowd these queens if given plenty of room. The bees are as gentle as one could wish; cap their honey as white as any bees cap it; and, as workers—well, I can't explain it. It is needless to say that this strain of bees will be in evidence in my apiary as long as I keep bees. You are at liberty to publish this if you wish.

THOS BRODERICK.

To those who are thinking of trying this strain of bees, I would say, don't wait until next spring before sending in your order. Last spring, when I began sending out queens, there were orders on my books for nearly 200 queens. Orders are already coming in to be filled next spring. They will be filled in rotation; so, if you wish to get a queen next spring, order her this winter. The price of a queen is \$1.50; but safe arrival, safe introduction, purity of mating, and entire satisfaction are all guaranteed. The

queen can be returned any time within two years, and the money refunded, and 50 cents additional sent to pay for the trouble.

The REVIEW for this year and twelve back numbers (of my own choosing) and

one of these queens for only \$2.00. soon as your order is received, the back numbers will be sent, and your subscription put on the book to the end of 1901, and next summer the queen will be sent you.

W. Z. HUTCHINSON, Flint, Michigan.

Here we are to the Front for 1901 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. We also carry a complete line of other supplies. Catalog free. R. H. SCHMIDT & CO., 9-99-tf. Sheboygan, Wis

Please mention the Review



Honey Queens.

Have you noticed the change in my post office address? I am 200 miles further south; where the peach trees are in bloom, and the bees bringing in honey and pollen. Here is the place for early queen rearing.

Did you know that I am seeking to give my customers the best possible services

Did you know that I have as good, or

Better Queens,

than can be obtained elsewhere?

Many have found this out, and continue my best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES.

In March or April, tested or untested, \$1.00 each; six for \$5.00; one dozen, \$10.00; breeders, \$2.50 to \$5.00 each. Bees, nuclei and full colonies, for sale.

W. H. LAWS, Beeville, Texas.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queeus, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

3-99-tf

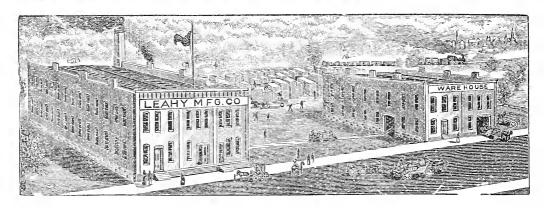
THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

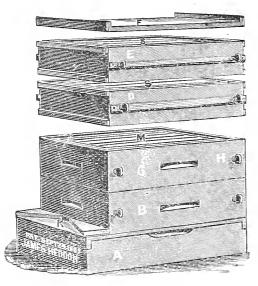


There is scarcely any condition of ill-health that is not benefited by the occasional use of a R. I. P. A. N. S. Tabule, and the price, 10 for 5 cents, does not bar them from any home or justify any one in enduring ills that are easily cured. For sale by Druggists.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bre-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progres-

sive Bee-Keeper. Address

LEAHY Mfg. 60., East St. Louis, Ills. Omaha, Nebrasha.

DADANT'S

Foundation

By the new Weed Process is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1901
is Ready. Send for a Copy;
it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world.

G. B. LEWIS CO., Watertown, Wis., U.S A.

Branches:— G. B. Lewis Co., 19 So. Alabama St., Indianapolis, Ind.

Agencies:— L. C. Woodman, Grand Rapids, Mich. Fred Foulger & Sons, Ogden, Utah. E. T. Abbott, St. Joseph, Mo. Colorado Honey Producers' Assn.,

Denver, Colorado.

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good Shipping Cases, you can get them of us. A full line of Bee Supplies on hand.

Write for illustrated cata logue and price list free.

Marshfield Mfg. Co., Marshfield,

O neens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I am able to secure the mating of my queens with drones from the most desirable colonies. Special attention is given to the lection of both queen-and-drone mothers from colonies that show marked industry, and cap their white. Safe guaranteed, and every warranted to produce light vellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, she will be replaced, money refunded. shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

IAS, F. WOOD, No. Dana, Mass-

Post Fountain Pen.

The very best in the market; regular price \$3.00, and not obtainable under this price anywhere.

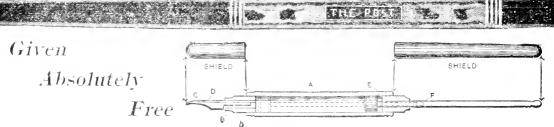


THE SIX CARDINAL POINTS PECULIAR TO THE "POST:"

SELF FILLING.
SELF-CLEANING.
SIMPLICITY.

RELIABILITY,
DURABILITY,
NO LEAKING.





For two new subscriptions to Gleanings and your own renewal with \$3.09 or for one new subscription and your own renewal with \$2.50; or your own subscription will be advanced 2 years, and the pen furnished for \$2.50.

In each case all arrears if any, must be paid in addition, the above offers being for subscriptions fully in advance only. I believe we can say truthfully without fear of contradiction, that no fountain pen ever put upon the market ever received in so short a time so many unsolicited testimomals from such distinguished men as the POST The above drawing shows its construction. To fill the POST all you have to do is to dip the nib into the ink-bottle, draw out the plunger, and the pen is ready for use. Compare this with unscrewing the ordinary style and refilling with a glass filler that you cannot dways find when wanted. The self-cleaning feature of the POST, as illustrated, will also commend itself. With most pens specially prepared ink must be used or they are of no use, because they become so gummed up and it is well nigh impossible to clean them you simply dip the nib in water, draw the plunger back and forth like a syringe or squirt-gun, and in less than five seconds it is clean and free for a perfect flow of any ink that may be handy. We will send on request, a few of the many testimomals from noted men in various callings who have written merited words of praise for this most valuable invention. We can not offer the pen for sale for less than 3300 but by special arrangement we are enabled to offer it free as a premium with Gleanings in any of the following combinations. All arrears if any, must first be paid at \$1.00 a year. Then for 3,00 we will send Gleanings for one year, or till Jan 1, 1902 to two names; for one year to yourself, and send you the pen free For 32 50 we will send you the pen and Gleanings for one year, and to one new subscriber a year; for \$2.50 we will send the pen and Gleanings for two years. If you have ever been disappointed with a fountain pen we assure you that you will not

The A. I. Root Company, Medina. O.



ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 percent; 6 times, 20 percent; 9 times, 30 percent; 15 times, 40 percent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with-

Gleanings, (new) \$1.75
American Bee Journal (new) (1.00) 1.75
Canadian Bee Journal (1.00) 1.75
Progressive Bee Keeper (.50) 1.35
American Bee Keeper (.50) 1.40
The Southland Queen (1.00) 1.75
Ohio Farmer (1.00) 1 75
Farm Journal (Phila.)
Rural New Yorker (1.00) 1.85
The Century (4.00) 4.50
Michigan Farmer
Prairie Farmer
American Agriculturist (1.00) 1.75
Country Gentleman
Harper's Magazine
Harper's Weekly(4.00)4.20
Vonths' (Countries (now) (75)
Youths' Companion (new)(.75) 2.35
Cosmopo itan(1,00) 1,90
Success, (1.00) 1 75

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—'Ill sections to be well filled; combs straight, of even thickness, and firmly attached to all roursites; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent., except that a few dealers charge only five per cent. when a shipment sells for as much as one hundred dollars.

KANSAS CITY—We quote as follows: Fancy white, 15; No. 1 white, 14; fancy amber 13 to 13½; No. 1 amber, 12; fancy dark, 10; white, extracted, 10.5 kg. 10.5 k

W. R. CROMWELL, FRUIT & CIDER CO., Mar. q. 423 Walnut St., Kansas City, Mo.

CHICAGO— Comb honey is scarce; good demand. Fancy white, 16; amber 14; dark, 10 to 11. We can sell white extracted in 60 lb. cans at 7c per lb.

S. T. FISH & CO.,

Mar. S.

189 So. Water St., Chicago, Ills

NEW YORK—The market for both extracted and comb honey is rather dull at present. We quote as follows: Fancy white, 15; No. 1, 14; No. 2, 12; buckwheat, 10; buckwheat extracted, 5¹2; beeswax, 28.

FRANCIS H. LEGGETT & CO.

Feb. 18. W. Broadway Franklin & Varick Sts

CINCINNATI, OHIO.—The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for 10 cts.; lower grades do not want to sell at all. Extracted is selling slow; amber sells for 11 and higher. Fancy white clover brings and 812. Beeswax 28.

C. H. W. WEBER,

Jan. 14. 2146 Central Ave., Cincinnati, Ohio.

CHICAGO—Fancy white comb honey sells readily at 16, but all other grades are weak at the following range of prices: No. 1 white, 14 to 15; fancy amber, 12 to 13; fair amber grades, 10 to 11; buckwheat, fancy, 10; off grades 8 to 9; extracted, white, ranges from 7 to 8; amber grades, 6^{L_2} to 7^{L_2} : buckwheat, 5^{L_2} to 6; Southern, dark, 5 to 6. Beeswax in demand at 30 cents.

R. A. BURNETT & Co., 163 So. Water St., Chicago, Ill.

Mar 8.

BUFFALO - Considerable improvement in honey trade, and it is helping clean up-old and dark grades. Fancy light is wanted. We quote as tollows: Fancy white, 15 to 16; No. 1 white, 14 to 15; fancy amber, 12 to 14; No. 1 amber, 10 to 11; fancy dark, 9 to 10; No. 1, dark, 8 to 9; white, extracted. 7 to 8; beeswax, 27 to 28.

BATTERSON & CO.

Mar. 8. 167 & 169 Scott St., Buffalo, N. Y.

NEW YORK—Comb honey is being well cleaned up on our market. The demand has lessened to quite an extent, on account, we presume, of the high prices which have been ruling. Fancy white still brings 15 to 16c. in a small way; No. 1, white, 13 to 14; amber, 11 to 12; buck wheat, 10. Extracted rather dull and not much doing. Cal. white honey at 7½ to 8; light amber, 7, Southern at from 60 to 70 cents per gallon; buckwheat, 5 to 5½. Beeswax steady at 27.

HILDRETH & SEGELKEN,
120 West Broadway, New York.

Feb. 19.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS**, Hortonville, Wisconsin.

Send us a list of what goods you want and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and New Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy of The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

Jamestown, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y



Pacific Oueens

Of three - banded, Italian, honeygathering stock.

Circular free,

W. A. H. GILSTRAP,

Grayson,

Calif. Stanislaus Co.

If you wish the best, low-priced —

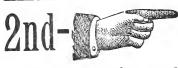
TYPE - WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

-If you are going to-

BUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.



Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona. and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coil Wire
arators) at
68 Covers at
53 Bottom Boards at
53 Honey Boards, Queen excluding at15
30 Escapes at15
50 Feeders (Heddon Excelsior) at
30 Alley, Queen and Drone traps. at 35
All of the above one in my negrossion and can

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particu lars upon inquiry.

W Z. HUTCHINSON Flint, Mich.

Names of Bee - Keepers.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2,50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Wis 500	Arizona 46 Ark. 130 Ala. 80 Calif. 378 Co10. 228 Canada 846 Conn. 162 Dak. 25 Del. 18 Fla. 100 Ga. 90 Ind. 744 Ills. 900 Iowa. 800	Ky . 182 Kans 350 La 38 Mo 500 Minn . 334 Mich .1,770 Mass . 275 Md . 94 Maine, 200 Miss 70 N Y . 1,322 Neb 345 N J . 130 N . H 126	N. C
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W. Z. HUTCHINSON. Flint, Mich.

Take notice, we are headquarters for the

Albino Bees,

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand 50 to 1 in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE.

3-01-3t.

Hagerstown, Md.

Please mention the Review

D. COOLEY & CO.,

Dealer in Bee-Keepers' Supplies, Kendall, Mich.

Root's Goods at Root's Prices.

Catalog free.

Please mention the Review

HEDDON CASES.

I have over 100 of the Heddon, old-style section cases, that are well-made and painted, have been well cared for, and are practically as good as new that I offer at 15 cts, each.

W. Z. HUTCHINSON, Flint, Mich.

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Henry Schmidt

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Is mentioned when answering an advertisement in its columns a favor is conferred upon botn the publisher and the advertis-It helps the former by raising his journal in the estimation of the advertiser; and it enables the latter to decide as to which advertising mediums are most profitable. If you would help the Review, be sure and say "I saw your advertisement in the Review," when writing to advertisers.

> the best smoker leverused Please send me one brass smoke I have one Enclosed find \$1.75

Hutto, Tex., April 10, 1900

Wm Bamber,

Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives. sections, separators, frames, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-It

Dittmer's Foundation

Baara Barri Baari Baari Baari Baara Baara Baari Baari Baari

Retail-Wholesale-Jobbing.

I use a non-dipping process produces every essential necessary to make it the best and most desirable in all re-My process and automatic machines are my own inventions, and enable me to sell foundation and

Work wax into Foundation for Cash at prices that are the lowest. Catalog giving

Full Line of Supplies, with prices and samples, free on application. Beeswax wanted.

GUS DITTMER, Augusta, Wisconsin.



Mushroons

-different with queen rearing. That takes years of experience and labor, together with a progressive mind. Nature must be thoroughly understood to make the progress to the progressive makes the progress of the progressive makes the progress of the make a perfect success. I have had 22 years of scientific practice with bees. My strain cannot be excelled in this or any other country. 26-100 is a very "long r ach," but my breeder comes up to it, and is direct from "sunny Italy." Cir. See what Prof. C. P. Gil-

cular free tells it all. lette, says:-

Mr. A. D. D. WOOD, Lausing, Mich.

Dear Mr. WOOD.—Your letter and the bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they run very uniformly as follows:

Whole reach of "tongue," from base of submentum to tip of ligula, 26 100 of an inch; ligula alone to the dark mentum 17,100 of an inch;

alone to the dark mentum, 17-100 of an inch

There were nine specimens and all their

tongues were measured.

Very truly, C. P. GILLETTE.

A. D. D. WOOD, Lansing, Mich.

Please mention the Review.

Bee - Supplies.

Root's goods at Root's prices. der's honey jars. Prompt service. freight. Catalog free. Walter S. Pouder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Early Queens.

We have Italian stock the equal of any. We rear queens in full colonies by the best known methods. We can furnish queens early—right NOW if you want them. Tested queens, \$2.00; untested, \$1.00; six for \$5.00; welve for \$9.00.

Discounts on large orders. CHRISTIAN & HALL, Meldrim, Ga.

a colony will buy my 10 colonies of bees. They are on Hoffman frames, in 8-frame, Dovetailed hives, have queens reared last summer from Hutchinson queen, and all are in first-class condition.

R. Q. TURNER, Woodstock, Champ. Co., Ohio.

Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Power Saw in making their hives, sections and boxes.

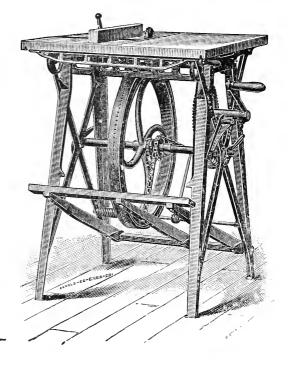
Machines on trial. Send for Catalogue.

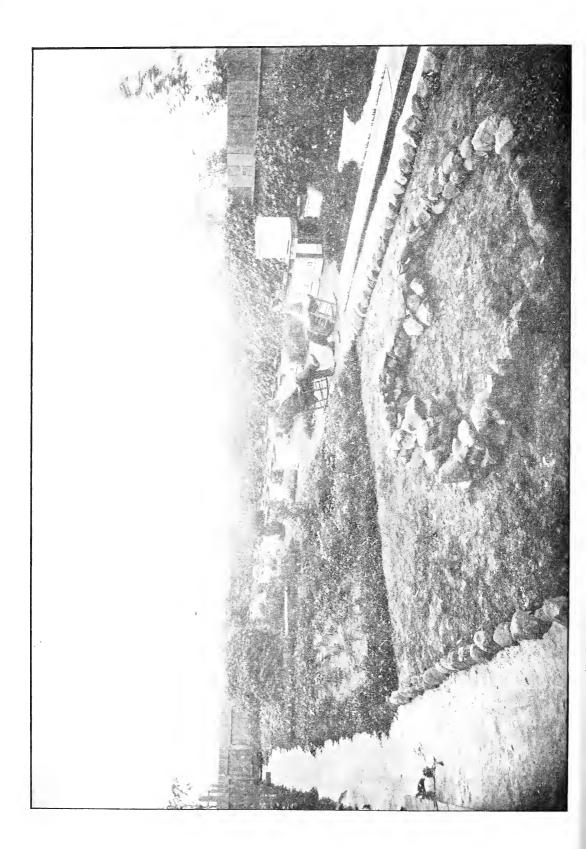
W. F. & JNO. BARNES CO..

384 Ruby St.,

Rockford, Ills.

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The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL XIV.

FLINT, MICHIGAN, APRIL 10, 1901.

NO. 4.

TEUR. BY PETER N. DUFF.

My experience in practical bee-keeping has been very limited, dating back to the



summer of 1899. In June of that year I wrote a few lines to Mr. York, editor of the American Bee Journal, asking if he knew of any one from whom I might be able to buy a "swarm" of bees; he gave me the address of a Mr. O'Donnel, an old-

time bee-keeper in this city, and, a few days afterwards, I became owner of a fairly strong colony. This colony swarmed in about a month; and later in the summer I purchased eight more colonies from the same man; and in the fall bought ten colonies through Mr. York.

At the commencement of the season of 1900 I had nineteen colonies in fairly good condition. I was quite successful with them last year, and increased by natural swarming and dividing to fifty-two. Besides this large increase, I secur-

ed considerable surplus honey. My banner colony gave me 244 pounds of surplus, chiefly comb. This colony did not swarm; and, although it may be a little out of place to mention it here, I will say the mother of this colony was purchased from Mr. Hutchinson, and was the first queen I ever introduced.

On December 10th, last year, my bees were put in winter quarters, in a repository specially constructed for the purpose. It is above ground, yet I had little difficulty in maintaining a fairly uniform temperature. The temperature did not go below 40° F. nor higher than 48°F. I had a small oil-heater in the repository, and kept it burning whenever necessary. A connection was made with the chimnev to take away the gases of combustion, and also for ventilation. One very important point was overlooked in the repository-calculations, and that was in not making some provision to get rid of the moisture given off by the bees. The dampness, more especially in the lower row of hives, was bad; and, in consequence, I lost one colony. The bees were set out on their summer stands on Monday, March 18, and I consider myself very fortunate in being able to get them out so early. They needed a flight very badly, and had an elegant time all

day; the temperature of the yard in the sun was 68° F. About ten of the colonies are weak in numbers, but by careful handling I hope to have all in good shape by the time of our expected honey flow.

I believe in ten-frame hives, or larger; and will work for extracted honey this coming summer. I will have fully as much pleasure with the bees as though I worked for comb honey; and, at the same time, will have fewer swarms and less fussing.

Wishing to have good stock, I purchased queens from nine of the leading queen breeders, and will select the best of these from which to rear queens this season.

I think my fondness for bees is inherited. In my native country (Ireland) my father had six or eight colonies in the old-fashioned straw skeps, and when a boy it was my greatest delight to get around where the bees were, and watch them going and coming. I like to do the same now just as well as I did then; and, although some few of my colonies, I regret to state, have made me retreat more than once, I like them just the same.

In my work with the bees I have at all times been very materially assisted by Mr. W. H. Horstmann, who owns an apiary about 2½ miles from mine, and also by my friend and willing helper, Frank Brown. I am sorry Mr. Brown was not present when the picture of "The Crystal" was taken; as I would like to have had his features show in it; because not a little of the credit for the appearance of the apiary is due to his efforts. CHICAGO, Ills. Mar. 23, 1901.

my market

NOWLEDGE OF CONDITIONS, AND METHODS OF MANIPULATIONS, OF MORE IMPORTANCE

THAN "NEW-FANGLED TRAPS." BY CHAS. KOEPPEN.

"Wake up to changed conditions." This sounds to me as if some of you old

vets. of the seventies had gone to sleep. I have been in the business since 1883, and yet do not see that any great change has taken place.

The results from a few colonies in 1883 convinced me that, if bees were handled right, money could be made out of them. With a fixed determination to succeed, I bought bees. I have failed in only three seasons to get a good surplus of honey.

I began to study the conditions of those colonies which gave surplus honey; always aiming to bring all colonies into the same condition. I believe this is the only way to work out your financial salvation.

You speak of improved methods and short cuts: I don't know of anything that is of any aid in handling a large number of colonies, unless it is the clipping of the queens, and the use of escapes in removing the honey. I use the same hives and fixtures that I always used. A smoker, something to pry up frames, and scissors to clip queens, are all the tools I use in the apiary. I think a non-swarming hive, or the handling of hives only, would be very dangerous; at least, for a beginner. A hive which does not require the frames to be handled, would make one very careless about the inside of the colony, and, sooner or later, foul brood, or something, would take hold of the bees and use them up before it would be discovered. I would advise the use of only a movable-frame hive, and the learning of how to manipulate the frames so as to control and prevent swarming as much as possible. After a little practice this can be done more rapidly and easily than hiving the swarms.

After I began managing in this way, I started a new out-apiary every spring until I had six. I visited each once a week, during the swarming season. This was done so easily that I needed no help until I had five apiaries, when I had an inexperienced hand three weeks, and took 8,000 pounds of comb honey. The next season, with one helper ten days, in six apiaries, we took 12,000 pounds of

comb honey. The next season, with a helper ten weeks, we took 20,000 pounds of comb honey. The next season, with a helper 15 days, we took over 9,000 pounds. Last year, without any help, I took 14,000 pounds of comb honey from six apiaries.

It is not to the improved things, which are so much talked about, that I owe my success, but to improving myself in knowledge of the conditions and care of bees. Don't wait for success to come to you. Work for it. Don't be always trying new things. Learn to use those you have to the best advantage. If you cannot succeed with methods in common use, you will likely not succeed as a specialist.

What will mix most successfully with bee-keeping? I think that depends upon how a man handles his bees. I know it very often becomes desirable, if not necessary, to do something in connection with bees. By handling frames you can control swarming, and thus be able to divide your time; giving a portion to something else. But, by letting the bees have their own way, it is necessary to be there in readiness to hive them.

Two seasons I managed 40 colonies and worked 4½ days each week in a factory. We had half a day off Saturaday, so I would take that day and Tuesday or Wednesday. I have also worked at other work to good advantage. This could not be done if swarming was allowed. past eight years I have done nothing in connection with my bees; not because I could not but because I did not care to do My experience is that many things will go with bee-keeping; but all depends upon the management as to whether any success will follow. The man who takes off his gloves and coat when he enters the apiary, and learns to manipulate the frames for his bees, giving them as many as ten Langstroth or twelve Gallup frames will soon find bee-keeping a safe and profitable business, and will soon drop other things if they inferfere with the bees; but the man who is always buying new hives, and all kinds of traps that are advertised "to do it all," will soon meet with disappointment.

FREDERICKSBURG, Va., Feb. 26, 1901.

OPE FOR THE FUTURE LIES
IN IMPROVED IMPLEMENTS, METHODS AND
STOCK. BY J. E. CRANE.

"Wake up, bee-keepers, to the changed conditions," is the greeting of the ed-



itor of the Review in the first number of this journal for the twentieth century. Wake up to the changed conditions, if we are to make money at our business.

During the first eighty years

of the ninteenth century, more wealth was accumulated by civilized nations than during all the previous centuries of the Christian era. How? Why? Because, largely of improved methods. To day one man can spin more cotton than two thousand could have spun one hundred and twenty-five years ago; and so rapidly is weaving done that, I was reading only a day or two since, that the price of cotton prints had fallen to three cents? The cotton gin revolutionized the production of cotton.

Now, what is true of the cotton industries is true of almost every indurtry. How can a farmer with his sickle and flail compete with his neighbor who uses a reaper and improved threshing machine? The ranchmen of the plains with their thousands of cattle, and the sheep-men of the west and Australia, have made the eastern farmers hustle to keep even with them; or even to live, and keep out of Machinery, steam, electricity, improved methods, short cuts to produce results, are among the most marked characteristics of the century just closed. The bee-keeping industry has, to a considerable extent, shared this impulse. may safely be said that no nation on the face of the earth, to day, produces such

quantities of honey, as our own; or secures it more economically.

The invention of the frame hive has, indeed, revolutionized bee-keeping. The number of hives that have been invented is legion, and each one is supposed to have some special advantage over others. Few, however, of those that have been placed on the market, have had for their greatest merit the saving of the time of the bee-keeper. Time, to a live man, is more valuable than even honey. not enough that one hive should lead to the production of a third more honey than another, if it requires twice the time to manipulate or care for it; if so, it would mean loss to adopt it. I was greatly interested a few weeks since, while visiting a friend, to see in how many ways he could manipulate the Heddon hive, and how fast he could go through the various manipulations necessary during the honey season, without even lifting a single comb!

One of the strong points in favor of an eight-frame Langstroth hive is that you can handle the frames of a hundred such hives while you are going through eighty ten-frame hives—a very important difference. A great advantage of the Quinby-Hetherington frames is that they can be handled very rapidly. Perhaps the same might be said of the Hoffman.

I used to suppose some men were lucky, and that wealth came to them by chance; but I have learned, with the years, that the man who can do two things while the other is doing one is the lucky man. A man has recently died in a neighboring town, possessed of large wealth. How did he secure it? for he began life as a teamster with no wealth. He got a start driving two teams while the other fellows drove one. He could drive one by day, and another by night, and in this way could accumulate, while the other fellows could only live.

But, what of "changed conditions?" There is no doubt but we must face the fact that soon our noble forests of basswood must disappear, except in such places as the trees grow too full of limbs to be of much value for lumber. A friend of mine has purchased a large amount of mountain land, so as to control the basswood; and I would suggest that where the land is cheap, that is suitable for growing this honey producing tree, and is already fairly covered with trees, it would seem to be good policy to buy and cut out other trees, thus giving the basswood all the room. I believe that, in time, the lumber from such a a lot would pay good interest on the investment, while the honey would be clear profit. The setting out of young basswood on good corn-land, and waiting for the honey, is quite another thing. There are limestone ridges in this section, and I presume in other places, where basswood grows more freely than other trees, springing up spontaneously, and will soon produce forests if fenced from domestic animals.

"Changed conditions!" How much that means! By changed conditions, thousands of species of plants and animal life have become extinct on our globe, and many others would have gone the same way had they not been capable of adapting themselves to the changed conditions. Naturalists tell us that some species of animals closely related to the giraffe have become extinct because of "changed conditions;" and this animal has survived because he has developed long legs and neck, thus enabling him to secure food where his relatives were unable to reach it.

Will our bees, when our source of food fails, adapt themselves to other flowers? In short, shall we be able to breed bees with tongues long enough to get a fair proportion from red clover, enough to make up the loss of the basswood? I believe if we wake up to the necessities of the case we shall; or at least we shall endeavor to do so. More can be gained in a few years by skillful breeding than in a a thousand years if left to themselves. In the arid regions where alfalfa is grown, there is likely to be an increase in honey

production. In the buckwheat sections, there is likely to be a sure reward to the enterprising bee-keeper. But in those sections where our main dependence has been clover and basswood, and the basswood is slowly but surely disappearing, we must wake up, and wake up early, if we are to depend on our fascinating profession for a livelihood. The outlook is not altogether hopeful; far from it; and yet I do not despair. By careful, thoughtful management, getting our hives filled with bees at the right time, learning how to care for a large number with the least possible labor, something may be done. When it is necessary to feed in September, honey can often be produced in outyards more cheaply than one can buy sugar; allowing the bees to fill brood combs in the upper story, and, instead of extracting, giving these well-filled combs to those colonies in other yards where the bees are short of stores.

In establishing out-apiaries one must be well acquainted with the honey resources of each location, and be sure of his own ability to care for all he plans for. One may care for eight yards much more thoroughly than another could care for as half as many; and one might make money out of three or four yards who would lose money if he cared for more. All who would make a living at the present time by keeping bees, must make their time count for the most, and save labor wherever possible.

I am hopeful that large results will be gained by breeding from our most productive stocks. During the season of 1899 I observed, in one of my vards, two colonies that were much more productive than the rest; and these same colonies, the past season, showed the same results; although given the same care in the same kind of hives as the other colonies in the same yard. Whether the large yields of honey gained by these two colonies were the result of longer tongues, or greater vigor, or more persistent industry, I am unable to say; but of one thing I am sure, and that is that whatever the cause or

reason, I have satisfied myself that they can be reproduced in a large degree in their offspring; and that the honey production of a given yard of bees can be much increased by carefully rearing queens from the most productive colonies.

I have no queens for sale.

MIDDLEBURY, Vt., Feb. 25, 1901.



NPAINTED HIVES, IF SIN-GLE-WALLED, KEEP THE BEES DRIER AND WARMER. BY G. M. DOOLITTLE.

I see by page 58 of the February Review, that Mr. W. Z. Hutchinson has



been led astray in thinking that Doolittle and Mr. A. C. Miller are antagonistic in their views regarding the painting hives. Had our worthy Editor [W. Z. H.] read as closely as is his custom, he

would have at once seen that Bro. Miller had set up "a man of straw" and then proceeded to knock it down; for the last half of Miller's article, copied in the Review, shows that he has no experience in painting hives, other than double-walled, or chaff-packed hives, as they are usually termed; no matter with what material the space between the walls is filled. now that I call his attention to it, I think he will remember that Doolittle has always advocated painting chaff or doublewalled hives; for such has been the case. It is the painting of single-walled hives to which I have objected. Understanding this, it will be seen that Mr. Miller's rubber coat simile falls flat; for in it he supposes that underneath the coat, and

over the man is an under shirt, a shirt, a vest, a coat and an overcoat; this corresponding with his chaff or walls of planer shavings. To hold good, the man should be stripped of clothing, and then, having put on the rubber coat, stand out in the rain, snow and zero weather. a colony of bees in a painted hive, having only walls of 7/8 inch lumber, and standing out all winter, would be about as comfortable as would that man having on only the rubber coat. And he could have it all open at the bottom for ventilation, so the moisture "would all go out the front door," in the bargain, for all I care. Mr. Miller's arguments are all right for double-walled hives, and quite nearly the same as those I have made in the past, for such hives; but when it is understood that I was always and only recommending the non-painting of singlewalled hives, it will be seen that such arguments do not apply.

I was driven from the paint doctrine first, by seeing puddles of water at the entrance of painted hives on mornings after a frosty night, when the bees the day before had gathered quite largely of maple sap, while unpainted hives showed no water at all. Examining the hives further, I found that the combs were damp, and in places wet, in the painted hives, and the bees quite closely contracted, while in those unpainted, the combs, bees and all, were dry and nice. Later observations showed that those in the unpainted hives were the first out for the fields in the morning, and the first to swarm, by nearly a week. Then, in winter, where any such were left on their summer-stands, the painted hives showed frost and ice on the hive and combs, in some instances clear down to the cluster of bees, while those unpainted had only a little frost in the extreme corners of the hive. When a thaw came, the bees and combs were all wet and nasty, often resulting in the death of the colony, or in moldy combs and weakened bees in the spring, while the unpainted hives came out clean and bright as to combs, and

much stronger colonies, as a rule. These were the things that led me to "preach" against painted, single-walled hives, the matter of economy or looks playing no part at that time, in the matter of my decision. After so deciding, and knowing, I must confess that an unpainted, single-walled hive looks much better to me than the most ornamental painted one. "Handsome is that handsome does."

I have unpainted hives in my apiary that have been in constant use for 20 years, and with the exception of a change in the color of the wood, I do not see but they are as good and servicable to-day as These hive-bodies and covers would cost only 48 cents (and body and cover is all we can figure on in this case) according to the catalogues of 1901, while, from the best figures I can make, painting, as Bro. Miller proposes, would have cost \$1.15 up to date. So, would we consult economy, it is all on the unpainted side. And I do not agree that those using unpainted hives, and knowing the reason why they so use, are any more likely to dothings in a "slip-shod" way, than is the one who paints and knows the full reason for his so doing. The slipshod man or woman, is the one who does things without stopping to consider the why of their doing as they do.

Then there is another item that enters into this matter of painting hives, as to their being water-soaked from the outside storms. All practical bee-keepers of the North know that it is to their advantage to cellar their bees (in singlewalled hives) during winter, and to protect them from the direct rays of the sun during the summer, so that the extreme heat shall not drive the bees from the sections during the middle of the day. And the shade-board which is the most servicable is the one which will shed wa-And thus it comes about that water seldom, if ever, touches the outside of this unpainted hive, except in very driving storms. And the unpainted hives give the bees the advantage of keeping dry and nice during the spring, after they are set from the cellar.

As to the "varnishing with propolis" part of Mr. Miller's argument, I cannot help but think that he has not been a close observer; for, if he had been, he must have noticed, (unless the propolis with him, and the way it stays, is different in his locality than it is here in central New York), that with the first freezing weather in the fall, when the moisture from the bees condenses on this propolis, it changes from its smooth, glossy appearance, noticed on all propolis freshly put on, to that of a dull color; the same being caused by the varnish checking or cracking in the most minute fashion, so that it no longer is impervious to water as it was before; but will allow moisture to pass through it in any moment. This is proven by the rotten or partially decayed wood in a bee-tree becoming saturated with water during the winter and early spring, and also by chaff and sawdust put over propolized honey-boards and quilts, becoming damp and wet, during the same period. I had thought that I would not write further on this unpainted-hive-question, allowing what I had written during the past to suffice; but seeing that I was so completely misunderstood, and that so many errors were coming to the front, caused me to consider it a duty I owed the bee fraternity, to add still another mite to what I consider the side of right.

BORODINO, N. Y., Mar. 16, 1901.



TION OF BOTH COMB AND EXTRACTED HONEY IN OUT-APIARIES. BY R. H. SMITH.

That was a timely warning to bee-keepers in the January number of the Review; viz., that they wake up to the changed conditions in bee-keeping.

Not many years ago bees were more generally kept, seasons were good, bees

increased rapidly, and large yields of honey were secured; so that the problem was how to keep down increase and find a market for honey at paying prices. change has come over the scene. country becomes more extensively cultivated, many honey yielding plants disap-The lindens are rapidly being cut, and will soon be a thing of the past in many localities, leaving the clovers as our main dependence for honey. clover is uncertain, owing to diminished rainfall the past few years. Alsike clover is a good honey plant, but not as generally grown as it ought to be, while red clover tubes are too deep for the average bee's tongue.

The changed conditions have resulted in discouraging the keeper of a few colonies, and increased the number of those who make a specialty of bee-culture, with their hundreds of colonies. Some may ask: How can it be that those with a large number can make it a success while others fail? The answer is easy to the initiated. Specialty, or having all your eggs in one basket, or in other words, devoting all one's time and thought to the pursuit.

The practical apiarist, now-a-days, who is in the business for a livelihood, must be prepared to manage several hundred colonies located in apiaries of 75 to 100 colonies each, not less than three miles apart, where the best bee pasturage can be obtained. In my own case, I have 175 colonies located in three yards about seven miles apart (could not get range nearer). I run them myself, part for comb and part for extracted, and find that with latest methods of handling I could as well handle another 100 colonies, or more, which I shall do as soon as possible.

How the work is done is explained in a few words. In this section our surplus honey is mainly from white clover and linden, so that we try and have the bees as strong as possible by the time white clover yields. Our queens are all clipped during fruit bloom, and when honey begins to come in I put a super filled with clean combs on each

hive. Those colonies with the youngest or most prolific queens are reserved for section supers, as, in my experiments, they are not so likely to swarm. I now visit the out-yards once a week or ten days, it depending upon the state of the weather or honey-flow. I look over a few that may be preparing to swarm, adding, occasionally, another super until sometimes three are in use on each colony.

About July 12th to 15th I prepare to extract from the top supers, the honey in which will be well ripened and capped, and here is where one of my short cuts come in. Instead of smoking the bees down and lifting the combs out singly and causing a disturbance by brushing the bees off, as in the old way, I proceed as follow: On my arrival at an out-yard I raise up the front of the top super, puff in a little smoke, and slip in one of our new bee-escapes, placing these under as many supers as are likely to be extracted during the day. As the sun rises it warms up these supers till the bees are very anxious to get out, which they can do freely through eight springs, being attracted by daylight to a slot, by means of which, however, they are left in the super below.

When I am ready to extract, the first two or three supers are ready to come off; these are lifted on to the wheelbarrow and taken to the extracting room; if there are a few bees left in the super they soon fly to the window, and are let out by the escape. By this method the bees are not roused, and robbing is not started; in fact, the bees do no know that anything unusual has happened, and the work is done in comfort without any special bee-dress.

After the light honey is all extracted in this way the bees are ready to move to buckwheat. This annual move plays a very important part in the new plan of management. As no buckwheat is grown in this locality, the bees have a very uncertain living between the linden flow and the time for placing them in winter quarters, seldom getting more than

enough to keep up a moderate amount of brooding, and requiring from 10 15 lbs. of honey or its equivalent in sugar syrup to make up their winter stores. This last heavy item of expense is now saved in great part by moving the bees about eighteen miles, on spring wagons, to where buckwheat is largely grown. queens are replaced with young ones, and any desired increase made by division, and they are left without any further attention while I am attending the fairs. The latter part of September or beginning of 'October they are taken back, usually with their winter stores and a good surplus of buckwheat honey, and what is fully as important, a fine lot of young bees.

ST. THOMAS, Ont., Feb. 20, 1901.





UT-APIARIES ON THE MI-GRATORY PLAN. SOME THING IN FAVOR OF CAR-NIOLANS. BY C. W. POST.

In writing on the keeping of more bees you have taken a subject of very wide range. To begin with, you have treated one part of the subject so thoroughly yourself, and, to my mind, so near to the point, that I can heartily endorse every word of it. It is all in a nut shell: "Keep a lot of bees; locate them around the country; and don't use up all the profits in useless manipulations." But, while we all agree in the foregoing, we must admit that to scatter hundreds of colonies around the country, and to properly manage them throughout the season, demands some experience or tact on the part of the apiarist.

In this article I will not attempt to say how things must, or should, be done, but will confine myself to describing the management of my own apiaries throughout the honey-season.

Eighteen years ago I established my first out-apiary by hauling the bees on

wagons. This I found to be very expensive; but, at the same time, it paid better than keeping them all in one place. It is not so much in overstocking as in the fact that the greater part of our rainfall comes in local showers. We sometimes get a good crop of honey in a certain locality, while at a distance of 15 miles there may be a total failure; although the prospects were equal in the beginning of the season. So, if you wish to "wake up to the changed conditions," you must scatter your bees.

Having learned the necessity of running out-apiaries, I find that by rail is much the cheapest and quickest way to handle my bees. I move them to the out-yards about the last of May, and keep them closed down warm until the first warm days in June. Then I go over the yards and take off all the bottom-boards, which are held in place by VanDeusen fasteners, and place a wire cloth screen under each hive, securing them by the same fasteners that held the bottoms. As soon as clover begins to bloom, topstories are put on; but I don't put on queen-excluders at the same time. over the yards about twice a week, and as soon as I see that the queen has been up stairs, I make sure that she is put below, and then the excluder is put on. is done to keep down the swarming-fever, as we call it. With the bottoms off, and all hives screened, and the queens allowed to make a very small start in top stories in the beginning of the season, it has reduced swarming to a minimum in my apiaries. I have not exceeded 3 per cent. of swarms in the last 12 years. I extract when the honey is from $\frac{1}{2}$ to $\frac{2}{3}$ capped.

Now, what race or strain of bees shall we use to secure the greatest amount of honey, all other conditions to be satisfactory? For my part, I have tried, during the last 23 years, all the different races of bees imported to this country, and, the crosses between many of the different races, even going so far as to take them to isolated islands to secure pure mating; all with a view of producing a strain of

bees that would increase our yield of hon-After trying all of the different races and strains, I have settled down on the Carniolans crossed with the dark colored Italians. My preference is Carniolan queens mated to Italian drones. the January Review, page 18, the editor says Carniolan bees are great breeders, etc., then closes the paragraph by saying that this explains why C. W. Post of Canada is so partial to Carniolans—his surplus comes from buckwheat. do get some buckwheat honey, but I have to move my bees 30 miles to secure it, and I always get clover honey, too, if anyone else does. I will give you the results of an experiment made last season between an out-yard of 108 colonies of Carniolans and their crosses, and one of 110 colonies of Italians. Both lots were wintered in the same cellar, and cared for alike in every particular. They were located five miles apart, and I could see no difference in the localities as to bloom, yet the Carniolans gave two pounds of honey to the Italians' one. The two yards produced five tons of the finest quality of white clover honey. was no swarming. In the last week in July the Italians were loaded on a car, and taken to the east end of the Murray canal for buckwheat, a distance of about 30 miles. On the 3rd of August the Carniolans were shipped to Trenton by rail, then transferred to a passenger steamer and taken to the west end of the Murray The two yards were about four miles apart, and all conditions were The Italians filled all top stories and sealed them over perfectly; but, in the same time, the Carniolans not only filled and sealed all top stories, but, in addition to this, filled 75 comb honey supers, each holding 35 one-pound sections. No swarming.

Now, as I get no increase from swarming, and wished to increase 75 colonies, I proceed as follows: I start my queen cells so they will hatch about the middle of basswood bloom. Two days before they hatch I make strong nuclei by

shaking the bees from five or six frames and giving two frames of hatching brood, and not closing them up. I want all of the old bees to go back, as by so doing the white honey crop is not lessened any, provided the season closes before the young bees become field-workers. good ripe cell is inserted at the same time between the frames of brood of each nucleus, protected by a spiral cell protector. After they are moved to the buckwheat, each nucleus gets two frames of solid hatching brood from the old colonies, and they build up to very heavy, strong colonies. I use no division board at this season of the year-a full set of combs are given at the beginning. My 75 colonies of increase last season were all taken from the Carniolans.

During my experience as a bee-keeper I found the whole secret of success is summed up in the following few lines: Keep lots of bees, and have them scattered about the country in such a way that they can be attended at a small cost.

And whatever race of bees you prefer, have them always strong. I cannot understand why it is that "the colony that suits the raspberry honey-man has passed its prime when basswood comes on." Might just as well say that the colony that just suits the white clover honey-man has passed its prime when buckwheat comes on. I want them always strong with no desire for swarming.

If you are producing extracted honey, be sure and have it of good body; so that buyers cannot possibly find fault with it, and store it in good, sound, cheap packages. For several years my packages cost me about 12 cents per 100 lbs. of honey.

And after a crop of honey is secured, don't give it away to the first one that comes along. Hold for a paying price. Again, if you are offered the outside market price, don't try to get ½ ct. per pound more, or you may find out to your sorrow how easily this world can get along without one individual bee-keeper; and, probably, later in the season, you will be

obliged to accept a much lower figure. I dispose of my crop entirely by wholesale, and I have nothing for sale but honey.

TRENTON, Out., Feb. 27, 1901.



NDERSTANDING THE STRUCTURE AND HABITS OF BEES MAY ASSIST US IN CONTROLLING THE MAT-

ING OF QUEENS. BY A. C. MILLER.

"Where ignorance is bliss 'tis folly to be wise;" consequently, as we could not



always or often apply the laws of heredity to the thorough breeding of our bees, and as we may not be able to do so any better in the future, 'twere better for us to be ignorant of them. You didn't mean it that way, Mr. Editor? Well,

you said things to me about horses and carts that were wrong way to, but I think 'twas you who got them so, not I.

Now at the risk of being again charged with getting the carriage and the motive power mixed, I am going to say things in advance of the expected experiments about controlled mating. Let us see just where we are, for 'twill do no harm —even though it may not be so blissful to know our latitude and longitude before we drive again into this unknown territory. We have had that "cubic mile" cage reduced to thirty feet high and thirty feet diameter. Good. We have had most of the workers sifted out from the drones. Good again. They are useful in their place but out of place there. We have had the drones taught to fly politely in that cage without flying on one another's wings, so to speak, or bumping their heads indecorously against the walls. Still good.

That much I believe, is the sum of our knowledge on the subject; at least, it is all the journals have told us. Editor, how much of that will serve as a guide for further experiments? not a little more information on the habits of the insects be beneficial? problem had been simply one of enclosure and getting the drones to fly in it, the solution would have been found long ago, and by more than one or two per-How many of the fraternity are there who can now, right off hand, tell us of the structure, life and habits of the drones and queens? If what gets into print is a fair criterion it's about time somebody was hit. Did somebody remark about throwing stones in glass houses? Perhaps 'twill be an improvement to have a few holes in my glass house.

Did you know that among insects it is the male that seeks the female? This being so, would it not be well to study the habits of our drones? Can we change their habits to meet our needs? John Lubbock deduced from his studies that the instinct of bees is not absolutely unalterable. Would it not be well to know how the presence of the queen becomes known to the drones and how they find her? Some male insects find the females by sense of hearing first; some by sense of smell, and some probably by sight; the eyes generally being the last sense to be employed. Some insects have olfactory sense highly developed; in others, auditory sense predominates.

In the drone the compound eyes are large and very convex; in the drone the simple eyes (ocelli) are placed right in front of the face, not on top as in the other bees. The simple eyes probably enable the insects to see, as our eyes do. They are believed to be useful in dark places and for near vision; estimated range about four and one-half feet. The larger and more convex the compound eyes, the wider the field of vision,

while the smaller and more numerous the facets, the more distinct will be the vision

The antennæ are olfactory, tactile and auditory organs. The auditory organs are simple, different ones responding to different tones. Henson found that different hairs vibrated to different notes. Bees antennæ are the most highly developed of all *Hymenoptera*. Forel and Lubbock have shown that sense of smell in bees is by no means highly developed.

For more of these see "Text Book of Entomology," Prof. A. S. Packard; "Origin and Metamorphosis of Insects;" "Senses, Instincts and Intelligence of Animals" and "Ants, Bees and Wasps" by Sir. John Lubbock. There are many other books, but not generally to be found in the average public library.

Do you not think a thorough knowledge of these things would aid us in reaching a solution not only of controlled mating, but also of other problems? Don't you think it worth while for those persons who are to attempt to solve some of those conundrums to know something about how insects grow, see, hear, smell and converse? If sounds, calls and "talk" guide the drones, would it not be well to know it and isolate the cages or enclosures-put them far away from the apiary? If sight guides them, would it not be well to know something about these organs in the bees, and, thereby, possibly, find some way to guide or aid? If 'tis by means of the olfactory organs, would it not be well to know it? If it is by a combination of several senses, think you 'twould hinder us in our efforts to Would not a knowledge of know it? these things be some help in determining size of enclosure, material, location, and a lot of other details?

Did I hear you say "visionary," "not essential," "waste of time?" Mayhap so, but if 'tis, then 'twill be the first time that knowledge was of no account.

PROVIDENCE, R. I., Mar. 28, 1601.

[Friend Miller, will you allow me to suggest, in the kindest possible manner,

for not for the world would I dampen your enthusiasm, that it is for a knowledge of the habits of insects that you are pleading so eloquently, and not for a study of the laws of heredity? with you, most thoroughly, that a knowledge of the habits of insects is most important in attempting to control the mating of queens. I have felt that until we could control the mating of the queen, a knowledge of the laws of heredity would be of little use to us, that we better bend our energies to the securing of that control, and I have not materially changed my mind, but I must admit that, to a certain extent, we are able to control the partenage of our bees. We can rear our queens from such stock as we please, we can prevent the production and flight of undesirable drones (in our own apiary, and that is all) and we can fill the air with drones of selected parentage. friend Miller, after all, there is some occasion for understanding the laws of heredity, and I, for one, am greatly pleased to witness your enthusiasm on the subject. It is very evident that you have been, at least, a somewhat extensive reader on the subject, and, to start the ball rolling, suppose that you give us an article embodying the gist of some of the important points as you understand them.--ED.]



THE SATURDAY EVENING POST, of March 16th, had a very readable article on "Keeping Bees in City Yards."

EREKKEKK EFEF

COLORADO is destined to become, if it is not already such, the greatest honey producing State in the Union. From the Rocky Mountain Bee Journal I learn that Thos. C. Stanley and Son, of Fairfield, Ills., are establishing some half a dozen apiaries, of 200 colonies each, in the

Arkansas Valley (Colorado). This same journal also speaks of our old friend Oliver Foster, as the honey king of Arkansas Valley, his crop last year amounting to something like 86,000 pounds—the product of 500 colonies.

"THE HOME CIRCLE," is to be the name of a new department just introduced by the American Bee Journal. As a rule, I am not inclined to favor the introduction of these side-issues into class-journalism, but when I saw the name at the head of the column, I was considerably molified—it was Prof. A. J. Cook.

OWN-UP like a man, if you are beaten in an argument. It's a manly thing to do, and raises you in the esteem of honorable men. When an opponent does this, the victor feels like grasping him by the hand—there comes over him a feeling that "here is a man who would rather be right than victorious."

KEKEKEKE FEE

MR. S. T. PETTIT, of Ontario, says in Gleanings that there is no necessity of deep top bars for the prevention of brace combs. He says that it is in the width of the bars that we must look for the secret of success. The editor's experience leads him to believe that deep as well as wide top bars are necessary.

Loading Combs so that they run lengthwise of the wagon was recommended by myself and the editor of Gleanings. We thought that they would be less likely to be broken than if loaded crosswise of the wagon. Mr. H. H. Porter of Wisconsin writes Gleanings that he made up a load of supers by loading some both ways. Not a comb was broken that was crosswise, while several combs running lengthwise were broken. This is case of theory versus practice in which practice came out ahead.

THE BEST OFFER that I have seen of Belgian Hares is that made by the Amazon Rabbitry, in the advertising colums of this issue.

YAYAYRARAR

To Hold Business you must give the man at the other end of the trade a good fair bargain. No business is long continued unless there is an advantage at both ends of the deal. To drive sharp bargains is poor business policy if a man intends to hold his customers. sometimes unable to find my regular drayman, and am obliged to employ some stranger. If he tucks on 10 or 15 cents extra, which sometimes happens, it is the last time that I employ him. In his greediness, he has ruined his future prospects for business with me. business point of view, it is poor policy to take advantage of a customer in a deal. Nothing holds a customer like looking out for his interests as well as your own.

LONG-TONGUE BEES—A TIMELY WARNING.

Bro. Root. in Gleanings, sounds a timely warning regarding the almost universal offering by breeders of long-tongue stock, and the disappointments that will probably come to some of the buyers of such stock. In the first place it is not yet known, definitely, that long tongues and superior honey gathering qualities go hand in hand. The indications point in that direction, but lack confirmation. Then, again, breeders are vieing with one another in making extravagant claims, the different methods of measurement furnishing a basis for assertions that would probably be proved untrue were all measurements made alike.

NAME AND ASSESSED.

Combs parallel or crosswise of the entrance, which shall it be? is a question asked of Gleanings; and the editor, after giving some points on each side, says that it is "six of one and half a dozen of the other." Bro. Root omits to mention what seem to me the most im-

portant reasons for having the ends of the combs towards the entrance. It is better to have the bottom of the hive slant towards the front. The rain does not then run into the hive, it is easier for the bees to keep the bottom board clean, and easier for them to repel robbers. If the hive is to slant to the front, the combs must be at right angles to the entrance or front of the hive. It has been said that the bees are more inclined to build straight combs, when foundation is not used, if one end of the frames is higher than the other. Whether this is true or not, I do not know.

THE ROCKY MOUNTAIN BEE JOURNAL is the best bee journal that has been started in many a long year. In the first place, it is exceptionally neat in its make-up, while the paper and press work are firstclass. Would-be publishers should know that a slovenly gotten up paper stands not the shadow of a shade of a chance in these days of neat typography. know how much editorial or apicultural experience is possessed by the editor, Mr. H. C. Morehouse, but his paper does not indicate that he is lacking in either. this journal should improve upon the first issue as much as some of the older journals have improved upon their first issues—well, we would have to improve, too, or be left behind. This journal is a 16-page monthly (with cover), at 50 cts. a year, and is published at Boulder, Colo. If western bee-keepers really care for a firstclass journal that is peculiarly their own, now is the time for them to support such a paper.

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G. W. Petrie, of Fairmount, Minn., writes that he believes there is a good deal in the tent-scheme for securing the mating of queens in confinement, and, rather than see the matter dropped, he would give \$5.00 to any responsible breeder who would build a tent and give it a trial. He says that if 50 others would do the same, some one ought to be induced to build a tent. Here is co-opera-

tion again. This is the thing that beekeepers need to work for more and more as the years go by and conditions change. Keep step with the times. How many more are there like Bro. Petrie? If there are enough of them, if there is encouragement enough of this sort, perhaps some one, the Roots, if no one else, may take hold of it. I wish to see some one take hold of it, in whom the public has confidence. It is really the work for an experiment station to take up, and I should be very glad to see the experiment station of our own State take it up.

EVENING IN THE APIARY would have an appropriate title for our frontispiece this month. It was evening when the Let me tell about it. picture was taken. After the Chicago Convention, last August, Mrs. Hutchinson and myself accepted an invitation to go out and visit the apiaries of Messrs. Duff and Horstmann. When we reached Mr. Duff's apiary the sun was perhaps an hour high, and "dead ahead" in the direction that it was necessary to "shoot" in taking the picture. The only way was to wait until the sun went down, and then give a long expoure-20 seconds. I might say, parenthetically, that, eventually, there is to be a fountain in the stone enclosure shown in the foreground. I suspect that the scene shown here was enacted many times last summer, when the two beekeeping chums, Horstmann and Duff, met to talk over the joys and sorrows of the day. Mr. Horstmann is a postman, and his friend Duff is superintendent of a factory that manufactures pepsin, fluid beef, pancreatin, etc. Both of these men are really amateurs in the true sense-engaged in bee-keeping for pleasure. though Mr. Duff frankly admitted that profits, both present and prospective, furnished a large share of the pleasure. Mr. Root and myself had the pleasure of an hour's chat with these gentleman last winter while on our way home from the Wisconsin convention, and their enthusiasm was very pleasant to witness. Their talk of getting ready for the coming season, laying in supplies, and nailing up 100 hives by working odd spells, all brought back memories of happy days of old.

KAKA MAMAMAN

WEAK COLONIES are something that, it is almost universally agreed, are not worth fussing with in the spring. Uniting them does not seem to help matters much. Several times have I united two or three weak colonies into one, in early spring, taking out the extra queens and selling them, only to find, a few days later, the newly formed colony no more populous than was one of the colonies that were used in its make-up. would again unite two or three of these made-up-and-run - down - again colonies, only to see them again reduced in numbers. I believe that once, when warm weather came, and the bees finally began to build up, I had the remains of a dozen colonies all in one hive. something about this matter that I don't exactly understand. Here are three weak colonies. We unite two of them. A week later it is difficult to say which is the colony that was made up from the two, and which is the one left to itself. See that your weak colonies have sufficient food, tuck them up snug and warm, and then let them alone-and that is good advice to follow with strong colonies.

KEREKEREKE

THE FOUL BROOD BILL, IN AN AMENDED FORM, HAS PASSED THE MICHIGAN LEGISLATURE.

Yesterday morning came a telegram from the Speaker of the House telling me that the foul brood bill, for which we have been working, had passed both the Senate and the House of Representatives. Towards noon, came a letter from Bro. Hilton informing me that his member had called him up and informed him that the bill, with an unimportant amendment, had passed the House. Last even-

ing Mr. John M. Rankin of the Agricultural College came over to see me about the situation; and, in order to make all clear, I shall have to go back to the beginning.

Our Governor is economically inclined, as regards matters legislative. Just a day or two before we introduced our bill he had given both houses a lecture on economy, and cautioned them to create no new offices. Under these circumstances we decided that our only hope was to make the suppression of foul brood a branch of some other bureau; hence our bill asked that, upon the recommendation of a majority of the members of the Michigan State Bee-Keepers' Association an Inspector be appointed by the Dairy and Food Commissioner. It really mattered little to us who did the appointing. All went well until the bill reached the committee of Ways and Means, and here it received a complete revision, in which, whether intentional or not, it makes the Inspector responsible to the Dairy and Food Commissioner, and places him in such a position that he "must comply with such rules and regulations as the Dairy and Food Commissioner shall from time to time prescribe for carrying out the work." In short, the Inspector becomes a tool of the Dairy and Food Commissioner. If there is a case of foul brood, it is to be reported to the Dairy and Food Commissioner, and then he is to send the Inspector. The worse of it is, that the bee-keepers have nothing to say as to whom shall be appointed. can recommend the appointment of an Inspector, and then the Dairy and Food Commissioner must appoint, but it will be whom he pleases.

These amendments were made, the bill reported out (in manuscript form) passed by the House, then sent to the Senate for its concurrence, and from the Senate to the Governor all in *one day*. Beekeepers were given no opportunity to approve or condemn. On the surface, it looks as though some one was interested in hustling it through in this form.

After talking the matter over, Mr. Rankin and myself decided that the only thing we could do would be to allow it to become a law (as it is now too late in the session to introduce a new bill, or to hope for a reconsideration of this) and then bring all the pressure possible to bear upon the Dairy and Food Commissioner to appoint the Inspector that we wish appointed. In two years from now it probably will be easier to secure an amendment than it would be to pass an original bill carrying with it an appropriation.

On page 12. I said that the expenses of Bro. Hilton in going to Lansing and working for the passage of this bill had amounted to about \$,0.00, and, at that date, April 1st. only \$10.00 had been sent in to help in defraying them. It is now April 10th, and \$8.00 more have come in, making \$18.00 in all. I hope there are a dozen more bee-keepers who can come forward with a dollar apiece; and if there should be a little over to help pay Bro. Hilton for the nearly two weeks' of time that he has spent, it would not be out of place. Right here I wish to thank, most sincerely, those who have helped, not only with their contributions, but with their letters to the members of the legislature—without these the bill could never have been passed.

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SECRETION OF WAX.

Mr. E. H. Schaeffle of California criticises, in Gleanings, Mr. Coggshall's idea that it is better to cut deep in uncapping honey for extracting, thus giving the bees an opportunity to use the wax that they are constantly secreting while gathering honey. Mr. Schaeffle says that this is the first time that he has ever known of bees being charged with wastefulness; that bees do not carry the wax about in their pockets, ready to shake it loose, like a chicken shedding feathers, when there is no further use for it. I supposed that nearly all bee-keepers knew that there is an involuntary wax secretion

going on all of the time when bees are Many times have I handling honey. seen these little scales protruding from the "pockets," of a bee. If there is no comb building going on these flakes are shaken loose and lost, unless they are plastered upon some place where they are not needed. When I practiced "feeding back" to secure the completion of of unfinished sections, and not much comb was being built, the secretion of wax was so great, and the demand for it was so small, that the inside of the feeders, and the top bars of the frames and the wood of the sections, were all plastered up with little white mounds of wax. To prevent this waste, I finally allowed the bees to build comb in two or three sections in each case. After making this provision for the use of the involuntarily secreted wax, the plastering of the inside of the feeders stopped. I use the words "involuntary secretion," as there was no use for wax; it was secreted because the bees were handling large quantities of sweet, and could not avoid the secretion All summer long, when the of wax. bees are gathering honey, there is more or less of wax secretion going on, and, if a bee-keeper produces extracted honey, there is not much comb being built, hence there is little use of wax; for this reason Mr. Coggshall cuts deeply when extracting, and, in lengthening out these cells, the bees find use for their surplus I think Mr. Coggshall is ahead just that much. I have practiced hiving bees upon empty combs in the brood nest, empty except narrow strips of foundation for starters, and secured more surplus of comb honey, and had the brood nest in as good condition in every respect, combs, brood and amount of stores, at the end of the season, as when foundation had been used in the frames of the brood nest. This is really an important matter. A great deal of the foundation used is wasted, yes, in some instances, Foundation is a worse than wasted. great boon, but we must know when, and where, and how, to use it.

COMMENTS ON THE CHAPMAN ARTICLE.

No article appearing in the Review has called forth so many favorable comments as the one given last month from Mr. S. D. Chapman. Mr. F. A. Gemmill of Stratford, Ont., writes as follows:—

In my humble opinion that article by Mr. Chapman is one of the best articles that you ever published, and the best of its kind on the subject. My! How Mc-Evoy would love that article. If he was near me he would say: "Oh, Gemmill! that was a grand review of the whole matter." I would agree with him, as I have tested it. Years ago McEvoy followed just such tactics, and says that any colony can be made as large as necessary, if we only know how. [Mr. Heddon will have an article next month in which he will criticise the advisability of such methods.—Ed.] Later—I wrote this card before I saw your editorial. Congratulations, that we agree.

Sure enough, by the next mail came a letter from Mr. McEvoy in which he says:—

Friend Hutchinson—That article of Mr. S. D. Chapman's in the March Review, is by far the most valuable one that I ever read. The using of an eight frame, Langstroth hive for a nursery ground, and then tiering up brood from time to time, is a thing of which I greatly approve, because, in my experience, it results in many more dollars for the beekeeper who practices it, than for him who does not, but uses a large broodchamber. The taking of the most value of the queens in one year, and then killing them off between the first and tenth of July, is a master stroke of business, and one on which I congratulate Mr. Chapman.

Next came a letter from Mr. G. F. Tubbs, of Annin Creek, Penn. In it he says:—

The March number of the Review is just at hand, and I wish to say that I consider that article by S. D. Chapman worth all that the Review ever cost me. I also like the ring of the remarks concerning yourself. Your travels among bee-keepers begin to bear fruit as I can see by the Review of late, especially the last three or four issues. It certainly does a man good to get out and visit his neighbor bee-keepers who have learned by experience. How fortunate you were in getting that man Chapman to write for you. His article shows that he has

been right out among the bees, and demonstrates the truth of what he says. I hope that the Review will meet with even greater success in the future than it has in the past.

Only one unfavorable comment has been received. I won't give the author's name as it was a private letter that he wrote me, and he might not be pleased to have me publish his comments, and give his name. He might not care, but, to be on the safe side, I will simply give what he said, which is as follows:—

The March number of the Review is received, and I have read Mr. Chapman's article, and I think that I can handle two swarms with the same labor that he gives one, and get twice as much honey.

I believe that I mentioned in my comments upon Mr. Chapman's article that I did not give it as a model for every one to work from, that his methods might not be the best for many readers, but I wished to especially commend the thoroughness with which he had studied out his locality and environments and then devised a system to meet the requirements of his surroundings. The completeness, and thoroughness, and adaptability of his system was what I especially admired. I have requested Mr. Chapman's critical friend to favor the Review with his methods, and I hope he will do so. If he does, we may have the pleasure of enjoying another object lesson fully as valuable as that furnished by Bro. Chap-

The last letter received on this subject is from my old friend, Aaron Snyder, of Kingston, N. Y., and he is just a bit indignant—thinks Mr. Chapman ought to have been given the prize. Here is what he says: —

My good friend Hutch, (Some folks like to be nicknamed, and some don't) I think that you have made a mistake in the last Review, and given the prize to the wrong man. I have read Mr. Clare's and Mr. Chapman's articles, and I can't see why Mr. Clare is entitled to the first place. His article is good. He goes on and tells us what to do, but he does not tell us how to do it. Mr. Chapman not

only tells us what to do, but goes on and tells us how to do it; and I think it the best article that I ever read on the subject of producing extracted honey and discouraging swarming.

I am glad that Mr. Snyder has written as he has, as there may be others who think as he does, and it gives an opportunity to explain that while Mr. Chapman's article gives some pointers on how we might manage out-apiaries, it was not written upon the subject of "changed conditions," which was the topic upon which articles were to be written in competition for the prize. If I had been called upon to award the prize to the best article in the March Review, regardless of the subject upon which it was written, it would probably have been given to Mr. Chapman, but I was awarding the prize to the man who had written the best article upon the changed conditions, the need of keeping more bees, scattering them around the country, and then managing them by short-cut methods. will notice that Mr. Chapman does not even touch upon this subject.

By the way, it is a difficult matter to so write that one will never be misunderstood. For instance, in writing my leader upon "Changed Conditions," I mentioned that the production of extracted honey enabled one to control swarming in ou'-ipiaries, while the improved demand for extracted honey made it a more desirable product than it was in former years. This was all incidental to the main point, viz., that of keeping more bees, yet several missed the main point, and considered the greater desirability of extracted honey production as the point that I wished to make. No great harm has been done, however, as it has resulted in several most excellent articles on extracted honey production being sent in. Also some articles comparing the production of the two kinds of honey.

The last two or three issues of the Review have certainly been cheering and enthusiastic. Even an old-timer, like Mr. Heddon, writes that his enthusiasm has been stirred up as it has not been in

years. I also have a letter from Harry Lathrop, in which he says he is going to give up that "\$60 a month for which he has neglected his bees," and is going to start another apiary, and his description of how he is going to do it, which I shall probably publish in the next Review, makes my pulses bound as they did in the early years of my bee-keeping. were not for the Review (and two or three other things) I should strike out for Northern Michigan and establish a series of out-apiaries, but I feel that, under the circumstances, I can do the most good (and don't imagine that I don't enjoy myself) right where I am.

CONTAGIOUS DISEASES AMONG BEES, AND SECURING LAWS FOR THEIR SUPPRESSION.

The greatest foe, at present, to bee-keepping is contagious diseases—foul brood, black brood, and bee paralysis. We do not hear so much lately of the latter as we did two or three years ago, why, I do not know, but black brood is taking its place with a vengence. In some districts of New York it has practically destroyed bee-keeping. The loss that comes with foul brood is something with which many of my readers are only too well acquainted.

The one thing needful in coping with these diseases, aside from a correct method of treatment, is concert of action. I may find foul brood in my apiary, and take great pains to eradicate it, but of what avail, if my bees continue to bring home the seeds of the disease from a neighboring apiary where colonies are allowed to die with the disease? Until we have adequate laws, and an efficient inspector in each State, foul brood and other similar diseases will remain a serious menace to bee-keeping.

The very first steps in fighting these diseases are, association, organization and co-operation. Without these, no laws can be enacted; and without laws that will compel careless, ignorant, or wilful

bee-keepers to rid their apiaries of the disease, the contest is hopeless. cure the passage of a bill carrying with it an appropriation, there must be an imperative demand. Before voting for such a measure, a legislator must believe that there are a large number of people who are in its favor-who need it. If I remember correctly, E. R. Root once went to the capital of Ohio to work in the interests of a foul brood bill. About the first question asked him was: "Does your State association favor this bill?" Somewhat reluctantly, Bro. Root was compelled to admit that Ohio had no bee-keepers' Association. All interest in the matter ceased right there. Further talk was useless. If the interest in bee-keeping in Ohio was not sufficient to lead to a State organization, it must be "pretty small potatoes"-not of sufficient importance to warrant the making of any laws. That was the view the legislature took of the matter. So far as I know, no State has secured the passage of a foul brood law that did not also have a State association.

I doubt if there is a State in the Union, where bees are kept to any extent, that has no foul brood within its borders. While bee-keepers have slept, the enemy has entered the camp; and some fine morning we will awake to find him in full possession, unless we arouse ourselves, buckle on our armor, and, shoulder to shoulder, fight the fight that knows no defeat. This is another one of the changed conditions to which beekeepers should awake. A few States already have foul brood laws. Wisconsin, New York, Colorado, California and Michigan have laws on this disease. Other States may liave such laws, but I don't know which they are. Michigan's law is of such a character that it is practically of no value, and some of us are working hard to secure the passage of a better law. Knowing that it was impossible to pass a bill unless some one went to the capital and looked after the matter, and knowing that some one must go at

once, E. R. Root and myself guaranteed the expenses of the Hon. Geo. E. Hilton, feeling certain that the National Association would pay the bill when the matter was laid before the directors. When it came to a vote, it was voted down, some of the directors saying that it opened the door for other States to ask for similar aid -that it was really too broad and momentous a question to be decided without thorough discussion, consideration, and, perhaps, a vote of the members. presume that this question will be brought up for discussion at the next meeting of the National, and probably be submitted, eventually, to a vote of the members. supposed that one of the primary objects of the Association was that of aiding in securing any legislation needed by beekeepers, whether National or State. course, if assistance is given to one State, it ought not to be witheld from the others; but it is not likely that enough States would ask for assistance, all at the same time, to deplete the treasury. To meet any such contingency, there could be a proviso that money should be so used only when in the judgment of the General Manager the funds in the treasury would warrant the expenditure. Personally, I am in favor of such a course. tional Association has reason to be proud of its record, but when it has assisted in securing the passage of an efficient foul brood law in each State, it will have done its grandest work.

When the National decided that it was not exactly the proper thing to help us, what did we do? Well, Bro. Root and and myself went down in our pockets and and paid Bro. Hilton's expenses, and then got out a circular-letter, explaining the situation, and sent it to about 100 beekeepers in Michigan, saying that, under the circumstances, we thought that they might esteem it a favor to be allowed to assist in the matter. Bro. Hilton has been to Lansing three times, giving his time, and his expenses have been about \$30.00, and I confidently expected that enough money would come in to not only pay his expenses, but, perhaps, to partly pay him for his time. The circulars were sent out two weeks ago, and at this date, (April 1) the receipts amount to exactly ten dollars! I am disappointed; not so much because Bro. Root and myself will be left to bear the expense, practically alone, but at the apathy, and indifference of the bee-keepers of my own State. Honestly, I thought you were more public spirited. Perhaps you are intending to join hands with us in the matter, but simply havn't "got around to it." I hope so.

Why am I telling all this? One reason is the hope that bee-keepers will help in the matter when they understand the circumstances, another reason is to show bee-keepers the difficulties that must be met in securing foul brood legislation. Over in Wisconsin, their most excellent law was secured largely through the efforts, and at the expense, of one man— N. E. France. Friends, these things ought not to be. Foul brood is a public menace to the business of bee-keeping, and the expense of its suppression should not fall on the shoulders of the few-but the many.

I said in the last Review that I was becoming more and more imbued with the spirit of helping bee-keepers; and if I can be instrumental in securing the passage of efficient foul brood laws in the different States, I shall then feel that I have not worked in vain. Good deeds, like charity, should begin at home, and that is why I have commenced with Michigan.

EXTRACTED.

ARTIFICIAL SWARMS.

They May be Made in Such a Way as to be the Equal of Natural Swarms.

We are now discussing the establishing and management of out-apiaries, and it is evident that some prefer to produce comb honey even in out-apiaries; the only obstacle in the way of such management being the swarming. This trouble may be entirely avoided by forestalling swarming, that is, by dividing, upon each visit to an out-apiary, all colonies that are approaching the swarming pitch. swarms, if made in the right manner, are the equal, in every respect, of natural swarms; and Mr. L. Stachelhausen, gives, in Gleanings, the right kind of advice for the making of such swarms. He says:

In my article, Dec. 15, 1899, I explained why another management is necessary for comb-honey production. For my management a two-story hive is needed. In spring we manipulate our hives in any of the recommended ways. To get a colony as strong as possible for the honey harvest, the brood chamber is enlarged at the right time by giving a second or third story. So we get all the advantages of large hives, and in 99 cases out of 100 such colonies will not swarm, according to my

experience of 15 years.

As soon as the honey-flow commences, and the time arrives when we think it is best to set supers with sections on top of our hives, a liive is prepared with starters only. We bring it to the hive selected for the new manipulation. The old hive is removed from the bottom board, and set aside to be handy for the following The new hive is set on the manipulation. old stand, and an empty hive-body on top of it. In all these operations I use smoke, and handle the bees somewhat roughly to cause them to fill themselves with honey. One of the brood-combs, with bees and all is put into the new hive, and then all the bees are brushed from every frame into this hive. The most important thing in this operation is, that the bees fill themselves with honey. A little sprinkling with a solution of sugar in water can be used if the bees do not suck up the open

The combs from which the bees are brushed into the new hive are assorted into different empty bodies near by—brood combs, honey-combs, or empty ones separately. It is not necessary to look for the queen. She is brushed into the hive

with the other bees.

At last we remove the empty body, lay a queen-excluding honey-board on top of the hive; and a super with sections (containing preferably full sheets of foundation and some bait-combs) is set on top of this, and the hive is closed.

Some time the next day, when the bees have commenced to build combs, the lower story of the brood-chamber is removed; and if the colony has not room enough, another section-super is given. At the same time I remove the broodcomb, which had no other purpose than to induce the bees to accept the situation with less disturbance. This broodcomb is not absolutely necessary. colony is now managed exactly as by

Hutchinson's method.

What to do with the brood-combs? have used them so far in forming or strengthening nuclei, and the nuclei plan is the only one by which I have increased my colonies for many years. The first bees coming out of this brood will be field bees about 18 days later; the last one, 39 days later. It depends on the duration of the honey-flow whether these young bees are more useful in the nucleus or in this hive. It is not difficult to utilizethem partially or all in the swarm by using Heddon's method of preventing after-swarms. I will not describe how this is done, as every bee-keeper knows At any time inside of 21 days we can brush all the bees in front of the swarm.

I mentioned the queen-excluding honey-board. In my locality it is not necessary to use it. I never had any trouble with brood or pollen in the sections; it is an advantage if we can dispense with this honey-board. A similar way is recommended by Mr. Danzenbaker in his book "Facts about Bees." He is very near to it; the only difference is, he says we have by all means to wait till the colony has commenced queen-cells. This a mistake. If a strong colony has any drone brood it is in a condition in which it can be swarmed. I recommended the forming of brushed swarms about 15 years ago, in the American Apiculturist, and made them on the old stand as well as on a new stand in uncounted numbers, with the result that these swarms always worked with the same vigor as natural swarms, so I know what I say.

For this management I prefer a Heddon hive with 10 frames in a body. Two of them have the same capacity as a Draper barn. It is just as well to use two of Root's 8 supers with 10 frames, but the top bar of the frames must be made 1/8 inch instead of 11/8 in. wide. These wide top bars work just like a queen-excluding honey-board, and are of more hindrance for expansion of the brood than too small a hive. In these shallow bodies we are not troubled with brace-combs, and this is the only reason for their use. I use the same super, two or more for the brood-chamber; but my frames are fixed in another way, but this is of no

importance.

With the 8-frame hive and the Danzenbaker hive two bodies are somewhat too large for the brood-chamber. This is no disadvantage during the spring develop-During the honey-flow they would be better if smaller. It will be difficult to get them to build out with natural worker-combs only, and no dronecells.

If one of the half-stories containing 10 frames with starters is given to this swarm the bees will fill them with worker-combs; and, according to my experience, these combs do not cost any thing. As soon as necessary, another half-story containing full sheets of foundation is given under the first one, all according to Hutchinson's method.

The advantages are, that we can get colonies for the honey-harvest as strong as possible, with less work, than by any other plan, and can use all the field-bees raised for the honey-harvest concentrated in one hive. When the honey-harvest commences, or at any time we think best, we can get the brood chamber and the colony in the most desirable condition for the production of comb honey. this management we do not need to watch for swarms, because we get none. The colonies are as near self-acting as possible; and for these reasons the method is the solution of the problem for outapiaries. If you ask me for disadvantages, I do not know any.

LOW RATES WEST AND NORTHWEST.

On February 12th, and on each Tuesday until April 30th, the Chicago, Milwaukee & St. Paul Railway will sell oneway second-class tickets at the following very low rates:

To Montana points \$25.00 To North Pacific Coast points, 30.00 To California 30.00

These tickets will be good on all trains and purchasers will have choice of six routes and eight trains via Missouri River each Tuesday. The route of the Famous Pioneer Limited trains and the U. S. Government Fast Mail trains.

All ticket Agents sell tickets via the Chicago, Milwaukee & St. Paul Railway, or for further information address Robert C. Jones, Michigan Passenger Agent, 32 Campus Martius, Detroit, Mich.

National Bee-Keepers' Association.

Objects of the Association.

To promote and protect the interests of its members.

To prevent the adulteration of honey.

Annual Membership, \$1.00.

Send dues to Treasurer.

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G. M. Doolittle, Borodino, N. Y.
W. F. MARKS, Chapinville, N. Y. J. M. HAMBAUGH, Escondido, Cal C. P. DADANT, Hamilton, Ills.

C. C. MILLER, Marengo, Ills.

CHOICE ALFALFA HONEY FOR SALE.

We have about 100 60-lb. cans of VERY CHOICE white extracted honey, in new cans and cases, two cans in a box, which we now offer, to move two can's na box, which we now oner, to move it quickly, at 7 cents per pound, f. o. b. cars Denver, cash with order.

The Colorado Honey Producers 'Asso.
1440 Market St., Denver, Colo.

Buy a Belgian Doe and Litter.

The best and cheapest way for a beginner to start, is to buy a good doe with a litter five or six weeks old. We now have 200 does with litters, and they are going at prices asked by other large breeders for a DOE ALONE. Our specialty is DOES WITH LITTER OF YOUNG—proven breeders. Fine does of en prove worthless breeders, and some dealers dispose of them to the other fellow. The dealers dispose of them to the other fellow. The young that go free with our does will be worth twice the purchase price when they are 6 months old. This makes the safest and most satisfactory proposition for a beginner. Authentic pedigrees with all hares sold. We are the largest breeders of thoroughbred Belgians in Central U.S. We guarantee satisfaction on all shipments; and our guarantee is good. Book giving history and complete information; also book of pedigree blanks given to each purchaser. Write for descriptions and prices. and prices. AMAZON RABBITRY,

Michigan City, Indiana.

Please mention the Review.

Ve want to sell you bee-keepers' supplies. to give you entire satisfaction.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties-Hives, Sections and Comb Foundation. Cash paid for beeswax.

1-01-tf

M. H. HUNT & SON, Bell Branch, Mich.



Bee keepers should send for our

CATALOG.

We furnish a full line of supplies at regular prices, Our specialty is Cook's Complete hive.

J. H. M COOK, 62 Cortland St., N. Y. City

Please men...on the Review.

MY GOLDEN AND LEATHER - COLORED

Italian Queens

Are bred for business and beauty. Are bred for business and beauty. I furnish queens to the leading queen breeders of the U. S., queens to the leading queen preders of the U.S., and have testimonials from satisfied customers in the U.S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

4-00-tf

J. W. MINER, Ronda, N. C.

Please mention the Review.

50 Golden Breeders.

We are wintering 50 absolutely straight five-banded breeders, 200 fine, select, tested queens, and 500 tested; all reared last fall under the most favorable conditions. Our stock is the very best that money and skill can procure, as proven by our testimonials. We use the best methods, guarantee satisfaction, and give away a large number of valuable premiums.

We want your name and address, that we may send you our free circular which gives valuable information, and tells why we are able to supply the best queens in the world at living prices.

the best queens in the world at living prices.

Our Mr. H. H. Hyde will again have charge of our queen department.

Prices, on either Goldens. 3-banders, or Holy Lands, are as follows: Untested, in June, July, Aug. and Sep., one for 75 cts., six for \$4.25; in all other months, one for \$1.00, six for \$4.25; in all other months, one for \$1.00, six for \$5.00; tested, one for \$1.25, six for \$6.75; select tested, \$2.00 each; breeders, \$3.00 to \$5.00. Discounts on large lots.

O. P. HYDE & SON,

Hutto, Texas.

N. B. We furnish Root, Hutchinson, Leahy and other breeders, queens in wholesale lots. Let us supply you.

Your subscription paid one year to the Progressive Bee-Keeper upon receipt of your first order for 1/2 dozen queens.

Every bee-keeper knows the worth of

A Good Queen,

knows the worth of a good strain of bees, also knows how worthless is a poor queen and inferior bees. Our bees rank with the first, and queens stand second to none.

Choice, tested, Italian queens, \$1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed. Send for price list. J. W. K. SHAW & CO., Loreauville, La. 3-91-tf

OTHER REASONS WHY

Our sections are superior to those of other manufacture: We have said that our material is made to order from selected, winter-cut bolts, sawed in the winter and piled under sheds before they are water-soaked. This gives our sections strength, life and color, and enables us to put on a finish with the new double sander, which saves one-half in the cost of this part of the process. The use of a double surfacer and the smooth cutting rip-saw enables us to do away with the moulder process of preparing the material, and saves 10 percent. of the material. This enables us to give you a better article for the money than can be had in any other process.

Long-Tongued Queens!

YARD NO. I.

By special arrangements with THE A. I. ROOT CO. to furnish them queens, I have secured their assistance in procuring the finest breeding queens that a tworough knowledge of the bees of the country and money can procure. Among them is a select daughter of their \$200 queen that they refused to quote me pr ces on. This queen shows every superior quality of her mother. Her bees show an actual reach of 21-000 of an inch; are large, gentle, and beautiful to look upon.

beautiful to look upon.

MR. E. R. ROOT SAYS: "You have as fine bees as there a e in the United States; and with a direct cross of their breeders you should be able to produce queens whose bees show a reach of 25-100 of an

inch."

Send for descriptive price list. Watch this space, and don't forget my long-tongue stock is the best that money and knowledge can procure.

Prices: Untested queen, \$1.00; 6, \$5.00. Tested queen, \$1.50; 6, \$8.00. Fifty select breeders from long - tongued strains, \$2.50 to \$5.00.

APIARY NO. 2.

Imported Queens, Daughters and Grand-da ghters.

GOLDEN, OR 5-BANDED ITALIAN.

APIARY NO. 3.

Breeders, select tested, tested, and untested queens.

REMEMBER the bear picture goes as a premium on six queens. 1901, unt sted queens will be ready to mail March 25 to April 1st. Send in your order at once, and get in on the ground floor. Breeders, select tested, and tested queens go by return mail.

W. O. VICTOR, WHARTON, TEXAS.

A. I. ROOT CO., 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight.

JOHN F. STRATTON'S



Importers and Wholesale Dealers in all kinds of MUSICAL MERCHANDISE,

Violins, Guitars, Banjos, Accordeons, Harmonicas, &c., all kinds of Strings, etc., etc. 811, 813, 815, 817 East 9th St., New York.

FIRE SALE

Of Bee Books!

On January ist there was a severe fire in our building, burning out entirely four floors above us. The water that was thrown on the fire came down through our floor damaging our stock of books, printing-office, etc. Some of the books were wet slightly, but enough so they could hardly be sent out as perfect. These are the ones that we wish to offer. The reading pages of all are perfect, only the covers being a little soiled. Here they are, with prices postpaid:

Prof. Cook's "Bee keeper's Guide," only 60c. Doolittle's Scientific Queen-rearing, only 50c. Newman's "Bees and Honey," only 40c.

They are all cloth bound, and latest edition. If you wanta year's subsription to the old Week-Iy American Bee Journal, with any of the above books, add 75 cents to your order. This is a SPECIAL OFFER, and will last only so ong as the slight damaged books last. Better order AT ONCE if you want a bargain. Rem mber we are

Headquarters for

Bee-Keepers' Supplies.

Catalog and sample copy of the AMERICAN BEE-JOURNAL, FREE. Ask for them. Address

George W. York & Co. 144-146 Erie St., Chicago, III.

I am advertising for B F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. c'ostellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

Three Times as Much!



I have recently returned from a trip through New York, where I attended a series of bee-keepers' institutes, or conventions. While at Romulus and Auburn, several bee-keepers told me of the wonderful performances of the bees from a queen that I had sold Thos. Broderick, Mr. Broderick had reared of Moravia. queens from this queen for both himself and a few friends, and nothing in those parts had equaled this strain of bees. Wishing to have the particulars direct from Mr. Broderick himself, I wrote and asked him if he would be so kind as to give them to me. Here is his reply:

Moravia, N. Y., Dec. 31, 1900. Mr. W. Z. Hutchinson, Flint, Mich.

Dear Sir:—It is with pleasure that I write concerning the queen that I purchased of you three years ago, as I have reason to believe her one of the most remarkable queens ever possessed by any bee-keeper in this part of the country

At the end of the first season, as you may remember, I wrote you my appreciation of this queen, but I will now go more into detail. Upon receiving the queen, May 24, 1898, I gave her to a colony that scarcely covered four Gallup combs. She built up that colony and gave me 140 well-filled sections, mostly from buckwheat. This I considered remarkable, as, previous to that time, 75 lbs. was the very best yield that I had ever been able to take from my best colonies.

In the fall, after preparing my colonies for winter, by some accident the super containing the absorbent was knocked out of place, thereby letting the heat of the cluster pass out of doors all winter. They were protected from the wind by a shock of corn fodder, and in this way they passed three months without a flight. They came through the winter somewhat reduced in numbers; but, again the colony built up and gave me a crop of 96 lbs. of well-filled sections.

The past season this colony gave me 48 1bs. of comb honey, which I consider good considering the age of the queen

(four years) and the very poor season. It was in the season of 1899 that I reared the first queens from this queen. past season the colony from one of those young queens gave me a crop of 174 sections which tipped the beam at 176½ lbs. The only thing that I did to this colony in the way of management was that, some time in May, I robbed it of a comb of honey and replaced it with an empty This queen was the only one of this stock that passed the winter in a full colony, all of the others being given to artificial colonies that were formed late in the season. They all wintered finely, although each colony occupied only some five or six Gallup combs.

The past season they all built up and gave me on an average 90 lbs. each of comb honey. My best colony gave me a crop that was three times as large as that produced by the best colonies of my neighbors.

Queens of this strain occupy every comb in the hive, and it makes no difference whether the combs are the Gallup, the Ouinby, or the hive a two-story Langstroth. The bees never crowd these queens if given plenty of room. The bees are as gentle as one could wish; cap their honey as white as any bees cap it; and, as workers-well, I can't explain it. It is needless to say that this strain of bees will be in evidence in my apiary as long as I keep bees. You are at liberty to publish this if you wish.

THOS BRODERICK.

To those who are thinking of trying this strain of bees, I would say, don't wait until next spring before sending in your order. Last spring, when I began sending out queens, there were orders on my books for nearly 200 queens. Orders are already coming in to be filled next spring. They will be filled in rotation; so, if you wish to get a queen next spring, order her this winter. The price of a queen is \$1.50; but safe arrival, safe introduction, purity of mating, and entire satisfaction are all guaranteed.

queen can be returned any time within two years, and the money refunded, and 50 cents additional sent to pay for the trouble.

The REVIEW for this year and twelve back numbers (of my own choosing) and one of these queens for only \$2.00. soon as your order is received, the back numbers will be sent, and your subscription put on the book to the end of 1901, and next summer the queen will be sent you.

W. Z. HUTCHINSON, Flint, Michigan.

Improved Golden, and Leather Colored Italians,

are what H. G. Quirin rears.

We have one of Root's best red-clover breeders, from their \$200-queen, and a golden breeder from Doolittle, who says: If there is a queen in the U. S. worth 5100, this one is; these breeders have been added to our already improved strain of

queens, for the coming season.

J. L. Gandy of Humboldt, Neb, wrote us on Aug. 15th, 1900, saying that the colony having one of our queens had already stored over 400 pounds of honey (mostly comb). He states that he scertain our bees work on RED CLOVER, as they were the only kind in his locality and apiary.

A. I. Root's folks say that our queens are extra fine, while the editor of the American Bee Jour-nal tells us that he has good reports from time to time. We have files upon files of unsolicited testimonials. After considering above evidence need you wonder why our orders have increased each year?

Give us a trial order and be pleased, we have years of experience in rearing and mailing queens. Safe del very will be GUARANTEED. Instructions for introducing sent with each lot of

queens.

QUEENS NOW READY TO MAIL.

Warranted stock, \$1.00 each; six for \$5.00. Tested queens, \$1.50 each; six for \$8.00 Selected tested, \$2.00 each; six for \$10.00

We have 100,000 FOLDING CARTONS on hand, and, so long as they last, will seil them with your address printed on in two colors, at \$4. per 1000; or 500 for \$2.75. At above prices you can't afford to place honey on the market without cartoning it

Address all orders to H. G. QUIRIN, Parkertown, Ohio.

(Parkertown is now a Money Order Office)

Die ist mention the Review

Here we are to the Front for 1901 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. so carry a complete line of other supplies. Catalog free. R. H. SCHMIDT & CO., 9-99-tf. Sheboygan, Wis

Honey Queens.

Have you noticed the change in my post office address? I am 200 miles further south; where the peach trees are in bloom, and the bees bringing in honey and pollen. Here is the place for early queen rearing.

Did you know that I am seeking to give my

customers the best possible service? Did you know that I have as good, or

Better Queens,

than can be obtained elsewhere?

Many have found this out, and continue my best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES

In March or April, tested or untested, \$1.00 each; six for \$5.00; one dozen, \$10.00; breeders, \$2.50 to \$5.00 each. Bees, nuclei and full colonies, for sale.

W. H. LAWS, Beeville, Texas.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

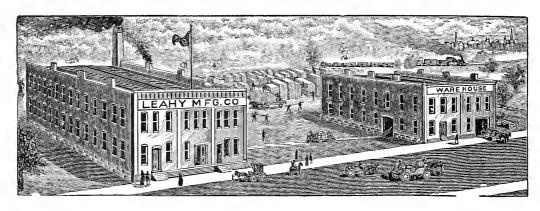
3-99-tf

THE JENNIE ATCHLEY CO..

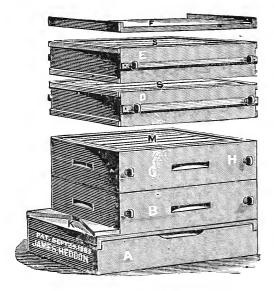
Beeville, Bee Co. Texas.

There is scarcely any condition of ill-health that is not benefited by the occasional use of a R. I. P. A. N. S. Tabule, and the price, 10 for 5 cents, does not bar them from any home or justify any one in enduring ills that are easily cured. For sale by Druggists.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bze-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Bast St. Louis, Ills. Omaha, Nebraska,

DADANT'S

Foundation

By the new Weed Process is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1001
is Ready. Send for a Copy;
it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world

G. B. LEWIS CO., Watertown, Wis., b $_{\text{J}}$ A.

Branches:— G. B. Lewis Co., 19 So. Alabama St., Indianapolis, Ind.

Agencies:— L. C. Woodman, Grand Rapids, Mich. Fred Foulger & Sons, Ogden, Utah. E. T. Abbott, St. Joseph, Mo. Colorado Honey Producers' Assu.,

Denver, Colorado

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

Marshfield Mfg. Co., Marshfield,

Queens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I amable to secure the mating of my queens with drones from the most desirable colonies. Special attention is given to the selection of both queen-and-drone mothers from colonies that show marked industry, and cap their Safe arrival white. guaranteed, and every queen warranted to produce light vellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, she will be replaced, money refunded. shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

IAS, F. WOOD, No. Dana, Mass.

S200, Red Clover OUEEN.

OFFER NO. 35.

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ON SEPTEMBER 1st last we announced that we finally had a redclover queen fully equal to the one we had years ago. The colony of this queen has given one of the most remarkable showings on red clover of any bees we have ever had. The queen in question is an imported one, and therefore of the genuine pure leather-colored Italian stock. We sent out daughters from her all the season. But we did not discover her value until the clover season, second growth, came on, and then her colony so out-distanced all the other 450 that she attracted attention at once.

It must be understood that these queens are not golden yellow, neither are their bees of the five-banded stock. They are simply leather-colored Italians, whose mother came direct from Italy.

Since the notice appeared regarding this queen we have hardly been able to supply all of the queens that were wanted from this stock. Many daughters of this queen we sent out before we knew her value, and it now transpires that some of the finest bees in the land are from queens we sent out early. We are now booking orders for the coming season, and make the following offer, but no queens will be furnished except those who subscribe for Gleanings, and only one with each year's subscription. All arrearages must be paid to the end of this year. Gleanings for 1991 and one untested red-clover queen, \$2.00; Gleanings one year and a tested red-clover queen, \$4.00; a select tested red-clover queen and Gleanings one year for \$6.00. We will begin mailing these queens in June, 1901. Orders are already being entered, and the same will be filled in rotation. Do not neglect to improve this opportunity and get some choice stock, and send your order early so you may get the queen correspondingly early in the season.

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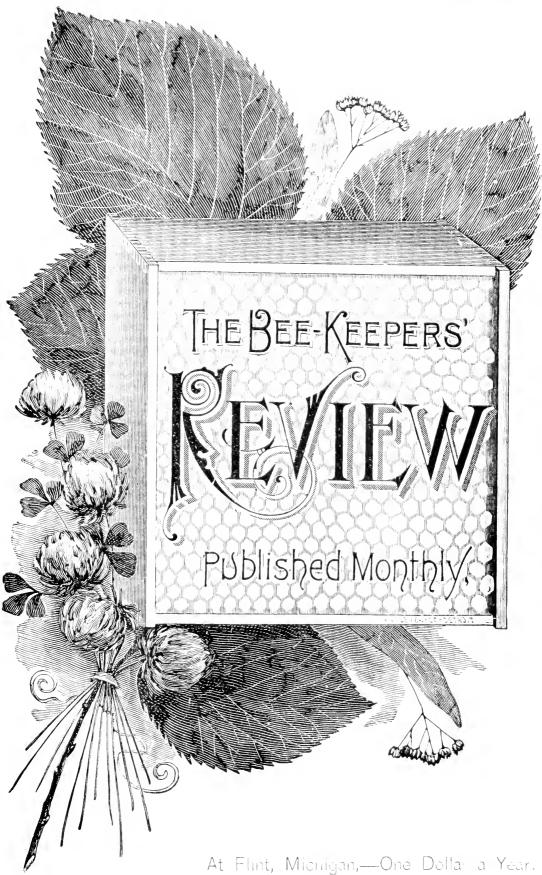
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A. I. ROOT CO., Medina, O.



ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times, 10 percent; 6 times, 20 percent; 9 times, 30 percent; 15 times, 40 percent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with-

 Gleanings, (new)
 (\$1.00)
 \$1.75

 American Bee Journal
 (1.00)
 1.75

 Canadian Bee Journal
 (1.00)
 1.75

 Progressive Bee Keeper
 (50)
 1.35

 American Bee Keeper
 (50)
 1.40

 The Southland Queen
 (1.00)
 1.75

 Ohio Farmer
 (1.00)
 1.75

 Farm Journal (Phila.)
 (50)
 1.10

 Rural New Yorker
 (1.00)
 1.85

 The Century
 (4.00)
 4.50

 Michigan Farmer
 (1.00)
 1.65

 American Agriculturist
 (1.00)
 1.75

 Country Gentleman
 (2.50)
 3.15

 Harper's Magazine
 (4.00)
 4.10

 Harper's Weekly
 (4.00)
 4.20

 Youths' Companion (new)
 (1.75)
 2.35

 Cosmopolitan
 (1.00)
 1.90

 Success
 (1.00)
 1.75

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and combunsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent; except that a few dealers charge only five per cent, when a shipment sells for as much as one hundred dollars.

KANSAS CITY—We quote as follows: Fancy white, 15: No. 1 white, 14: fancy amber 13 to 13¹2; No. 1 amber, 12: fancy dark, 10: white, extracted, 16: S.

W. R. CROMWELL FRUIT & CIDER CO., Mar = 423 Walnut St., Kansas City, Mo.

CHICAGO— Market on comb honey firm; selling fancy white at 10, No. 1 white, 15; amber, 13; dark, 10 to 12. Extracted as to quality, 5 to 7. Would like correspondence from various localities advising the prospects of crop for 1001.

S. T. FISH & CO.,

Apr 30.

189 So. Water St., Chicago, Ills

NEW YORK There is very little comb honey held in this market and the demand is very light. We quote as follows: Fancy white, 15; No. 1, 14; No. 2, 12; buckwheat, 10; buckwheat extracted, 5½ Peeswax is in good demand at 27 to 28, according to the quality.

FRANCIS H. LEGGETT & CO.

May I. W. Broadway Franklin & Varick Sts.

CINCINNATI, OHIO —The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for io ets.; lower grades do not want to sell at all. Entracted is selling slow; amber sells for object and higher. Fancy white clover brings 8 and 8½. Beeswax 28.

C H. W. WEBER,

Jan. 14. 2146 Central Ave., Cincinnati, Ohio.

CHICAGO—Fancy white comb honey sells readily at 16 but all other grades are weak at the following range of prices: No. 1 white, 14 to 15; Iancy amber 12 to 13; Iair amber grades, 16 to 11; buckwheat, fancy, 16; off grades 8 to 6; extracted, white, ranges from 7 to 8; amber grades, 612 to 712; buckwheat, 512 to 6; Southern, dark, 5 to 6. Beeswax in demand at 30 cents.

R. A. BURNETT & Co.,

Mar. S

163 So. Water St., Chicago, Ill.

BUFFAI₆O. Some fancy white, comb honey wanted at 13 to 16 cts., but dark is very dull and unsalable except at cut prices. We quote as follows. Fancy white, 15 to 16; No. 1 white, 12 to 13; fancy amber, 10 to 11; No. 1 amber, 9 to 10; fancy dark, 8 to 6; white, extracted, 7 to 8; beeswax 22 to 28.

BATTERSON & CO.

May. 1. 42 Michigan St., Buffalo, N. Y.

NEW YORK—We report a quite market on all lines. While the old crop of comb honey is well exhansted, still there is some arr ving, which has been carried by the producers, evidently, for a higher price. Values are mostly nominal now, and it is only a first class fancy article that will sell at quotation prices. We quote as follows. Fancy white, 15: No. 1, 13: amber, 11 to 12 buckwheat, 0 to 10; extracted is decidedly dull, and very little inquiry. Old crop Cal light amber, and partly white, is now being offered as low as 4½. F. O. B. Coast, which, of course, hurts the sale of other grades to a large extent. Beeswax is firm and sells on arrival at from 25 to 20 cents.

HILDRETH & SEGELKEN,

265 & 267 Greenwich St., Cor. Murray St.

May 3.

New York.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS**, Hortonville,

Send us a list of what goods you want and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and New Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy of The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

JAMESTOWN, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the bees. Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y



Pacific Queens

Of three - banded, Italian, honeygathering stock.

Circular free,

W. A. H. GILSTRAP, Grayson,

Calif. 2-01-6t Stanislaus Co.

- If you wish the best, low-priced -

WRITER.

Write to the editor of the REVIEW. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

-If you are going to-

RUY A BUZZ-SAW,

write to the editor of the REVIEW. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.

Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered. 1 (304) 7072-

1 Coll wire
61 Section Cases (Wide Frame and tin sep-
arators) at
68 Covers at15
53 Bottom Boards at 10
30 Escapes at
59 Feeders (Heddon Excelsior) at25
30 Alley, Queen and Drone traps. at 35

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particular lars upon inquiry.

W. Z. HUTCHINSON. Flint, Mich.

Names of Bee - Keepers.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 46 Ark. 130 Ala. 80 Calif. 378 Colo. 228 Canada 846 Conn. 162 Dak. 25 Del. 18 Fla. 100 Ga. 90 Ind. 744 Ills. 900 Iowa 800	Ky 182 Kans 350 La 38 Mo 500 Minn 334 Mich 1,770 Mass 275 Md 94 Maine, 200 Miss 70 N. Y 1,322 Neb 345 N. J 130 N. H 126	N. C

W. Z. HUTCHINSON, Flint, Mich.

Take notice, we are headquarters for the

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand 50 to 1 in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE.

3-01-3t.

Hagerstown, Md.

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D. COOLEY,

Dealer in Bee-Keepers'

Supplies,

Root's Goods at Root's Prices.

Kendall, Mich. Catalog free.

Please mention the Review

HEDDON CASES.

I have over 100 of the Heddon, old-style section cases, that are well-made and painted, have been well cared for, and are practically as good as new that I offer at 15 cts. each.

W. Z. HUTCHINSON, Flint, Mich.

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Rocky Mountain Bee Journal.

Monthly; 50 cents per year; sample copy free; 3 months on trial, 10 cents. Address The

Rocky Mountain Bee Journal Boulder, Colo.

the best smoker I ever used. Please send me one brass smoke I have one Enclosed find \$1.75

Hutto, Tex., April 10, 1900

Wm Bamber,

Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections. frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money, time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-It

Dittmer's Foundation

Retail-Wholesale-Jobbing.

I use a non-dipping process that produces every essential necessary to make it the best and most desirable in all re-My process and automatic machines are my own inventions, and enable me to sell foundation and

Work wax into Foundation for Cash at prices that are the lowest. Catalog giving

Full Line of Supplies, with prices and samples, free on application. Beeswax wanted.

GUS DITTMER, Augusta, Wisconsin.

I

Queens Now Ready | Bee - Supplies.

you want queens whose bees have the longest possible tongue-reach, you want large queens, you want prolific queens, order them

you want queens whose bees sre gentle, you want industrious bees, you want prompt service, you want your money's worth, order your queens of us.

We now have 500 nuclei, and will run 1,000 if ecessary. We use the Doolittle method, and we away valuable premiums, free. Among necessary. We use the Doolittle method, and give away valuable premiums, free. Among them, one year's subscription to the Progressive Bee-Keeper on receipt of your first order for onehalf dozen queens. Prices, either Golden, three-banded Italian, or holy-land, your choice, un-tested, 75 cts.; tested, \$1.25; select tested, \$2.00; breeders, from \$3.00 to \$5.00; select warranted queens 25 cts. extra. Discounts on quantities Circular, giving methods, etc., sent free on application.

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OUR MOTTO, Good queens and prompt service.

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Root's goods at Root's prices. der's honey jars. Prompt service. freight. Catalog free. Walter S. Pouder, 512 Mass. Ave,, Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

Early Queens.

We have Italian stock the equal of any. We rear queens in full colonies by the best known nethods. We can furnish queens early—right NOW if you want them. Tested queens, \$2.00; untested, \$1.00; six for \$5.00; twelve for \$9.00. Discounts on large orders. 3-01-3t

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a colony will buy my 10 colonies of bees. They are on Hoffman frames 8-frame, Dovetailed hives, have queens reared last summer from a Hutchinson queen, and all are in first-class condition.

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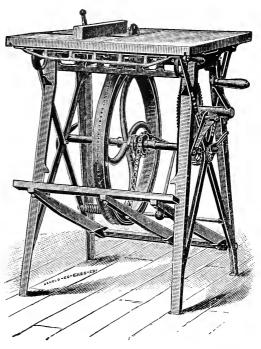
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HOME-APIARY OF E. B. TYRRELL, DAVISON, MICH.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOLXIV,

FLINT, MICHIGAN, MAY 10, 1901.

NO. 5.

INTER-PROTECTION
AND SPRING MANIPULATIONS. BY E. B.
TYRREL.

A glance at the picture, upon the opposite page, which gives a view of my home-apiary, would convey the impression that the hives were placed rather too close together for convenience; however, they are only about the width of a hive apart. The object of this arrangement being to move two rows together, in preparing the bees for winter. In preparing the bees for winter, two rows are moved towards each other, a little at a time, the one forward and the other backward, until the two rows are converted into one straight row, with the hives close together, ready for packing. Boards are placed behind the row, about three inches from the hives, and reaching from the ground up to about six inches above the hives. Boards are also placed in the same way in front of the hives, except that, in this case, they reach down only to within about two inches above the entrances. A narrow board is nailed on the lower edge and fits close to the hives in front to keep the packing from falling down over the entrances. The space between these boards and the hives and above the hives is filled with suitable packing, such as dry saw-dust, leaves, chaff, or planer shavings, and the whole is covered with boards or tarred felt. The entrances are kept as clear as possible. I remove the covers before placing the packing on top, substituting in their stead, cloth or newspapers, perhaps both. I am not sure there is any advantage in this when flat, single-board covers are used; but, with gable covers, or covers having a space over the frames, I would remove them.

Of course, these directions are modified to suit the hives. The chaff hives (of which I have only a limited number, and wish I had less) being left in their places, and hives with telescopic covers reaching to the bottom-board, as the larger part of the hives shown in the picture are packed only on top. That is, in the telescopic cover, having a space above the frames, said space will be filled with packing, and the hives moved together, as before, to better withstand the storms. Practically, they are double-walled hives, as the hive proper and the cover are each made of \% inch lumber with a 3\% space between, forming a dead air space.

In the spring the hives are examined some warm day, weak colonies protected, destitute ones fed, strong ones left alone, and all are left with their packing until about fruit bloom; when the packing is removed, hives moved apart, stores equalized if necessary, weak colonies united, or given brood, and the honey shifted in in the hive to encourage brood rearing. That is, the honey and brood are caused to change places to a certain extent, when the bees are now left alone until ready for the surplus. When putting on supers the brood is placed on the outside of the brood-nest, the honey in the center. By keeping a strict watch on the surplus apartment, and clipping the queens each spring, a visit about once each week gives perfect control of the bees.

DAVISON, Mich., Mar. 4, 1901.



TART OUT-APIARIES, BUT
ONLY AS RAPIDLY AS EXPERIENCE AND CIRCUMSTANCES WILL WARRANT.

BY HARRY LATHROP.

I agree with you, Mr. Editor, when you say that more bees must be kept than



formerly, if increased financial returns are to be obtained. Years ago, when the price of honey was much higher than it is now, and the yield greater per colony, quite a nice income could be secured from a

single apiary located favorably. In the January number of the Review you advise bee-keepers to enlarge their business and make it a financial success by increasing the number of colonies. This is all right, but I think one should grow into the business, and not add colonies or outapiaries faster than he can do so and at the same time be master of all departments of his business. He must know

that he can give proper care and attention to the bees in the proposed additional out-yard, and that he can dispose of the increased out-put of honey to good advantage. I have been told by beekeepers, right here in Wisconsin, that they could not dispose of extracted honey, there being no market for it. before such a man increases his business in the direction of extracted honey, he must learn that there is an almost unlimited market for that commodity if his business horizon could only be enlarged to take in the situation. But if he is master of his business up to the present point, then let him enlarge it on the lines that have proved profitable and satisfactory. That is what I expect to do this year. Instead of having two apiaries as heretofore, I expect to have three or four.

The additional yards will be devoted to extracted honey production only; so that the number of fixtures required can be reduced to the minimum. No supplies or devices of any kind for comb honey will ever be taken to the out-yard. These will be kept at home, where, for years, I have been equipped for the production of fancy comb honey.

The out-apiary which I intend to establish exists only as an idea, more or less well defined, in my brain; but I expect to see it realized, and feel the stings, not of conscience, but of those other stings with which you and I are so familiar. Now, my purpose here is to give you my plan, as nearly as I can in a brief paper, as to the establishment of this proposed apiary, and then invite your criticism.

First, deciding on a location. This has already been done so far as the locality is concerned. I made excursions in all directions from my home apiary, and the last point visited was far and away ahead of all the rest as a favorable location, so there is no doubt on that point. I wish to locate the yard about four miles southeast of my home. It will be a whitehoney location, almost exclusively. There is a small spring-fed creek flowing

toward the south, a strip of timber on each side containing a good many trees of maple and basswood. The latter are mostly of the low, spreading kind; much better honey producers than the tall forest trees with small tops only. It is a natural white clover location, and, back from the creek, in the open country, the farmers are raising alsike clover. The laud along the creek is very hilly and broken. I will first lease a small piece of ground in a sheltered nook near the stream and accessible to the road but far enough back to be out of the way of passing teams.

Having secured the land for a term of zears, I will erect a small, cheap building that will serve as a shop, extracting, and A cellar will be dug, in bunk room. sloping ground, of sufficient size to winter 150 colonies, which would be the maxinium number that I would expect to keep in that yard. I would fence and clean up the ground and make it as neat and handy as I could at small expense. Then I would buy up all the bees that were for sale on the field and begin to form my apiary and get it up to the standard of productiveness as soon as possible. During the working season I should expect to have some one in charge, or have the apiary visited often enough to prevent loss of bees or honey. One can usually buy at a fair price what few bees the farmers have on such a field, as hog-farming, sheep-farming, and dairying pays the average farmer more for his labor that he can get out of bees. I am not much of a believer in "farm bee-keeping." Every man to his trade. "Every farmer should keep bees" is an old saw that needs considerable filing. Or, better still, throw it away entirely. There is nothing in it. Of two men who would start in, one to keep bees and one to keep sheep, here in Wisconsin, the one who followed sheep farming would stand the best chance to make money, provided that he understood his business as well as the bee-keeper did bee-keeping. Then why advise him to keep bees and complicate his work? I will keep bees in preference to other branches of production, because I understand it and do not understand the others.

Life is too short to master all branches. I used to neglect my bees somewhat, and gave as an excuse that I was paid sixty dollars per month for so doing, I now think it was a poor bargain for me, and have decided not to accept it in the future. Having resigned the position that paid me a monthly salary, I expect to give personal attention to bee-keeping as a specialty.

Browntown, Wis., March 27, 2901.



UCCESS IN BEE CULTURE
COMES FROM EXHAUSTING THE FIELD WITH THE
LEAST EXPENDITURE OF
CAPITAL AND LABOR BY LAMES

CAPITAL AND LABOR. BY JAMES HEDDON.

Josh Billings said that the best time to set a hen was when the hen was ready.



He believed that enthusiasm was necessary to the production of a brood of chickens, and so do you and I. The reading of the last three or four issues of the Review has furnished me with some

enthusiasm or inspiration. I have been particularly interested in the clear and concise article contributed by S. D. Chapman of Mancelona, whom I know very well, and whose apiaries I visited years ago; and who, by the way, is own cousin to Mrs. Heddon. Mr. Chapman is a success at anything he undertakes.

I have practiced similar methods to those he describes, when my apiary was small, the number of colonies being much below the honey secreting capacity of the Then it was important that we produce the greatest number of workers and the greatest amount of brood, to aid increase, that can be "whipped" and "dogged" from the limited number of queens in the apiary; but, as capital is cheaper than labor, in the bee-business, we should soon stock our fields with bees enough to gather all the honey secreted therein, by managing the colonies on the cheap, self-running, automatic plan. This is much cheaper and easier and accomplishes the same purpose; and this carries me back to my old proposition of years ago, viz., that the watchword of our pursuit isn't how much surplus honey per colony, can we get, but with how little outlay of combined labor and capital, can we exhaust our field or area, receiving the greatest amount of the most marketable surplus honey? My method of doing this, it strikes me, is much more economical than that of brother Chapman. But, perhaps, localities differ so much that different systems of management are necessary. My bees never fail to immediately enter the surplus receptacles—whether for comb or extracted honey—the moment the flow of nectar suggests more room; and that, too, without any decoys of any kind, or any urging or coaxing of any sort. All that is needed is room, and they will seek it and occupy it even if compelled to pass through three break-joint, queenexcluding honey-boards, to get there. My queens also fill the brood-chamber with brood without any shifting of combs or other inducements of any kind, provided the colony is in average force and room above allows the workers to carry honey up, thus relieving the combs below. Remember that the fertility of my queens is in excess of the room in the brood-chamber, as it should be, for brood chambers and combs cost money, while queens cost nothing.

I do not believe in working queens to their greatest capacity except in cases

where the number of colonies is below the capacity of the field.

It seems to me that bee-culture has not progressed much of late years. I notice that brother Dadant is still talking about large hives. It would seem to me, that by this time, all such progressive bee-keepers as take the Review would be using adjustable hives that are large or small, in either the brood or surplus department, at the instantaneous will of the bee-keeper; and that, too, without the necessity of removing a frame.

But what do we mean by "success in bee-culture?" Don't we make that term cover the ground of success in life? Don't we demand that the successful apiarist, a quarter of a century old in the business, should show the accumulation of a competency or more? Now, isn't it true, that one succeeds in bee-culture, though he fails in life, by recklessly spending an income, the savings of which in the hands of another, would lay up a competency of fifteen or twenty thousand dollars? Observation teaches me that only about one man in fifty ever gets a competency in life, except that he practices careful economy and temporary self denial.

In a future article I will endeavor to convince you that fertilization of queens in confinement is not at all necessary to the breeding of a most useful and popular strain of bees. Brother A. C. Miller's able article, on page 80, is right on the line of the method I will describe, and of the success of which I know, for I have practiced it with the most satisfactory results.

To conclude I will say that I have had many letters soliciting the plan of my slip-gear honey extractor, some of which I have not felt able to answer. I would be glad to have all bee-keepers have the advantages of the arrangement; I assure you it is a daisy. Won't you be coming this way, so you can photograph it, and describe it to your readers?

Dowagiac, Mich., Mar. 28, 1901.



UT-APIARIES NOT PROFIT-ABLE FOR EYERY BEE-KEEPER IN ALL LOCALI-TIES. BY W. A. H. GIL-

STRAP.

Some months ago, Mr. Editor, you gave us a text, "What is the most hope-



ful field?" On page 21, January Review, you call for contributions which might come under the above head, but your entire editorial might do better for a text. Really, it is very largely a matter of location.

To begin with, there is something almost sad about your request. The subject is handled in a purely financial style. Of course, it is a question of cash. You say, "I wish to see bee-keepers prosperous." More than than that, you wish to see them reach the greatest degree of human happiness and perfection, with a bright hope for futurity. To illustrate, you can find places, isolated perhaps, where you can make more money with a system of out-apiaries than you are doing at present; but you would necessarily have to be away from home more, would be worth less to your family, to society and yourself, than in your pres-To make the suggested ent capacity. change would be very unwise. Many are making more than a living at home, mainly from bees, who could make more money to scatter their time and business all over the country, and still have less of life's real success than at present.

But there are others who have no homes, or, having homes, are well contented to be absent much of the time. Others are so situated that it is only a short run to an unoccupied location in almost any direction. To such, and perhaps others, there is little to consider except hard cash.

Location is one of the first things to The man who has a profitable consider. apiary, with no available location for an out-apiary, had better be cautious about changing. The nature of honey flows has a decided bearing in profit on extensive honey production. In some places it is hardly practical for a family to depend on bees alone. A small garden, some chickens and a cow or two, actually pay, aside from the pleasure of a well supplied larder. Of course, if you are near a store, with a milk wagon and vegetable vender passing your door frequently, it may be quite different.

If your location proves to be quite profitable, with no available locations for out-apiaries, it might be unwise to change locations, it other occupations would combine well with it. olives and bees for this valley. The bulk of the work with olives is done between October first and March first, then for three months the work is moderate with with both bees and olives. Some time in June or July the honey harvest commences and lasts until the first of October, when the fruit is about ripe. By that plan one man can put in his time the year through at one place, having no idle spell. Perhaps that would be more profitable than any other method in some cases, while in other surroundings, with other men, it would not.

The methods of intensive and extensive bee-keeping can not both be the same: but to get the best results there must be general plans to work to in either case. If an apiarist perfects these plans in a short time he is a curiosity. Better, far better, serve an aprenticeship with a successful bee-keeper. In extensive honey production, all hair spliting movements must be discarded. There must be a general uniformity of management that is not so essential with a few colonies. Two things are very important-good queens and plenty of room.

Of course, just at present, it looks bright enough for a man who is getting good crops. "Years ago extracted hon-

ey was of slow sale at low prices, but its use by bakers and other manufactures has placed the demand upon a firm basis." Yes, and two successive crops of honey throughout our country would place it on firm bed-rock. But with ample capital, and just lots of bees, it can be made a very fair business at three cents a pound. Of course this applies to extracted honey with fair crops. The most money I ever made in one year was on honey that sold under three cents at shipping point. On honey which sold for over five cents another season my profits were not so large. Fewer bees with better average yield was the cause.

The rush to get great numbers should not be made at a disregard for good stock. With modern methods it is so easy to keep approved bees that there is little excuse for handling inferior trash.

If there is a general rush of many to keep a large amount of bees it will certainly drive many "little fish" out of the business, or into territory now unoccupied, probably both. I shall not attempt to discuss whether this policy will bring the greatest good to the greatest number or not. The person who contemplates the rapid expansion of his bee business should consider his means, taste, location, market, and other factors bearing on the problem before deciding. Having decided let him adapt his methods to his choice.

GRAYSON, Cal., Feb. 17, 1501.



IND, CRISP, CRITICISMS
INSPIRED BY THE LAST
FEW ISSUES OF THE REVIEW. BY J. E. HAND.

Friend Hutchinson, the April Review is at hand, and it is, as usual, "chuck full" of solid information and encouragement for the honey producer. The Review for 1901 has done much towards establishing honey production, as a means

of gaining a livelihood, on a solid basis as compared with other rural pursuits.

The March and April numbers are especially encouraging; and it seems to me that I have never read any two bee journals that contained so much solid, condensed, and practical information for the honey producer as is contained in these two numbers.

The able article of Mr. Stachelliausen, in the April number, deserves especial notice, as it proves that expansion and contraction of the brood chamber are not things of the past, as some would have us believe. It also proves that comb honey can be produced in out-apiaries as well as extracted can. From actual experience, I can heartily endorse all that he says in this article.

Mr. Chapman's article has called forth considerable praise in the April Review, and, after carefully reading his article, I am led to believe that he is a hustler and understands his location. thoroughly That he believes in expansion of the brood-nest, also in the killing of all queens after they have run to their utmost capacity for one season, is very apparent. It is also very clear that he prefers an eight-frame hive; and that he allows the bees to raise their own queens by simply destroying the old ones; that he believes the time to build up colonies so that they will be strong in the spring is during the month of August; also that he prefers cellar wintering, although he admits that sometimes about all he has left in the spring is the cellar. Now, while I can heartily sanction the spirit of Mr. Chapman's article, I think some of his methods will bear discussion. says he prefers the eight-frame hive, and then says he has brood in from 13 to 25 frames. I can imagine Dadant would say: "Oh, my! I would rather have a brood chamber large enough to accommodate the queen than to go to so much work as the raising of those 10 to 15 extra frames of brood to the top stories, when done as he says, one or two at a time, each time having to lift off the top stories which have each time become heavier by the addition of brood and honey." I can imagine that Poppleton would say: "Oh, my! how much easier and quicker all this can be done by simply using the long-idea hive." And methinks Heddon would say all that Mr. Chapman has accomplished by so much handling of frames and lifting of heavy supers could be done in less than ¼ the time, and without handling a frame, by simply interchanging the sections of the divisible brood chamber hive. And who can dispute them?

What the honey producer wants, in these times of short crops and low prices, are short cuts and improved methods of manipulation; methods that will enable him to do twice as much as he has been doing; keep twice as many bees; handle hives instead of frames; learn to diagnose conditions by simply looking at the entrances as he passes along. It is to these improved methods of manipulation that the honey producer of today must look for his success.

The idea of killing all queens each year is a good one, but I should much prefer to rear the queens from selected stock, and have them fertilized in nuclei; as by so doing I should expect to improve my stock each year by selecting my very best queens as breeders. I believe that this one thing of killing off the queens each year and selecting the very best to breed from each year cannot fail to produce a superior strain of bees.

In summing up this whole matter, it seems to me that the most hopeful field for the honey producer is along the line of selection and breeding from the best; and also along the line of rapid manipulations and lightning methods.

Friend Hutchinson, I began this letter with the intention of writing you a few words of encouragement, but the enthusiasm caught from the Review has led me out farther than I intended.

WAKEMAN, Ohio, April 22, 1901.

WALL, HIVE MAY AF-FORD MORE PROTEC-TION THAN ONE THAT

IS UNPAINTED. BY A. C. MILLER.

If Mr. G. M. Doolittle had observed the points made in my article on unpaint-



ed hives as closely as used to be his custom, he would not have made the blunders he did in his reply thereto. And if he had observed the proper courtesies of journalism he would have made his reply in the journal in which my article

orginally appeared, the "American Bee-Keeper," and an apology is due from him to the editor of that paper for the snub he has given it. [Mr. Doolittle did send a reply to the American Bee-Keeper, also, but I presume Mr. Miller did not know this when he penned the foregoing.—ED.]

In Mr. Doolittle's zeal to defend himself in a false position, he has shown that at least sometimes he has not been as careful an observer as we have believed him to be. Instead of meeting my arguments and facts with the same, he has set up "men of straw."

I will state my position on the matter of painted hives in different words, and I think Mr. Doolittle will then see that the simile of the rubber coat holds good, and will also see why I use chaff hives. An unpainted board will absorb moisture freely; coat it with paint or varuish and it will not. When it is thus coated, the enclosed cellular structure is a fair nonconductor, hence a hive coated with varnish on the inside and paint on the outside, is, in a limited way, the same as a chaff hive, i. e., a porous poor conductor between two better conductors. When the pores in the wood of a single-walled

hive are filled with water, which is a good conductor, the hive becomes little better than if it were made of metal or stone. Mr. Doolittle has failed to tell us where the rain water goes to that falls on the outside of unpainted hives. If the water inside will go out, surely when there is any on the outside it will go in. And when these pores full of water freeze, surely those slabs of ice are not ideal hive walls.

The cracking of the varnish (propolis) on the inside of the hives, is on the surface only, the pores are still plugged with it.

In regard to the paint on the outside, it must be renewed frequently enough to keep the surface pores filled with oil, for the lead when the oil is gone is but little better than chalk; the water will soak through it. A hive with paint in that condition would be worse than an unpainted one, for while it absorbs water slowly, it also gives it off slowly, and as in the winter and spring months there are generally more wet days than drying days, such a hive stays wet. Perhaps the paint on the hives he used for comparison with unpainted ones, was in such a condition.

I seriously doubt the possibility of the moisture evaporated by a colony of bees in one night all passing through, or even into, the pores of the wood of the hive walls, even if they were not propolised at all, and when propolised, even though this is "checked," I doubt if it will absorb any moisture through that surface.

Painted and propolised hives being of partially non-conductive walls, I prefer them to the unpainted for the reasons above set forth, and I go farther and increase the thickness of the poor conductor by using "chaff" walls. According to Mr. Doolittle's figures (\$1.15 per hive for 20 years) paint must be expensive in Borodino, or else he must in his experience with that article use an unusual quantity.

The errors which have come to the front to which he refers, have been brought there by himself. During the

first five or six years of my bee-keeping experience, I used only single-walled hives, and since then while I have had most of my bees in chaff hives, I have always had some in single-walled hives.

PROVIDENCE, R. I., April 24, 1901.



OME CHATTY PRAISES AND CRITICISMS. BY HARRY HOWE.

Friend Hutchinson, the last few issues of the Review have been so



good that I have scarcely been able to keep from telling you so, and the March number has just stirred me up so that I have got to inflict myself on you whether you want me to or not. Even the advertising matter is

well worth a study.

Now as to why. First, that fine portrait on the first page. You bee editors are so modest that it must be a treat to those who do not know you personally to see how you look.

An article like Chapman's, fitted to Cuba, would be worth \$100 to me now, even after two season's effort in working up a system.

But Miller is the man who set me off. It makes me *tired* to read in some of our bee-papers articles on scientific subjects by men who are not even aware that the subject has been studied at all, and who have not themselves studied it.

For instance, why not publish some of Darwins' experiments with comb foundation stained red to show what the bees did with the wax? Or Lubbuck's work on the bees' sense of color?

How many of the writers on bees' tongues know that there are whole books

in print on the subject? I once spent some weeks working on the spoon at the end of the tongue, but have no notes here. I do remember, however, that there is a considerable amount of literature on the subject, and that by going through a card catalogue which Cornell University (and I suppose University of Michigan, also) supplies you can get a complete list.

The Review, I think, might be able to get some one who is studying these things to publish his work.

The thing I have missed the most in the Review is the Criticisms; and if one could be found with the knowledge and experience necessary, I should call it worth reading, but I have no desire to read discussions on the use of *sic* in the bee papers.

Here I find myself telling the editor how to do it instead of sticking to my text and telling him how well he did it.

Your write-up of the Coggshalls was the best and truest they ever had.

To day, as I was cooking some old black, dirty combs, some of the wax dripped from the slum gum, and fell on the floor where it cooled *quickly*, and it was as bright and clear a yellow as it could be. Try it. Some places in Cuba furnish a bright red wax; and a dealer here who uses 15,000 pounds a month tells me that "location" makes the difference in the color of wax.

Off the south coast here are many small islands where one can raise queens the year around, and where one could be sure of controlling the drones; the worst objection is transportation. I have thought some of putting a queen rearing apiary on an island which is in sight of the coast near me (I am eight miles inland) but I am not a queen brreeder; and, besides, we have said so much about foul brood in Cuba that no one would buy them.

We expect our foul brood law to go into effect soon now. It has hung fire for over a year.

ARTEMISA, Cuba, April 5, 1901.

TART OUT-APIARIES, AND
HAVE THE CHILDREN
GROW UP IN THE BUSINESS. BY MRS. GEO.
JACKSON.

I read the editorial, "Wake up Bee-Keepers," in the January Review, and wish to say that I, too, believe that bees combine best with bees; therefore get more bees. If you have children to help, keep more bees. Bring up your boys and girls in the business. Have them work, study and think, the same as they would do in preparing for any other profession or trade; for it is distinctly a business of itself, and a paying one, too. Then, why let your young folks leave home? plenty of out-apiaries; plenty of profit. I believe there is a better opening in bee culture, to day, for a young man or woman than in almost any other line. Equally good for girl or boy.

The little mother has had the entire care of our home-apiary; and with the help of the children (two girls and a boy) has done the work and made it pay away beyond our expectations. It has payed better than the farm—a good farm, too. We have run it mostly for comb honey, but shall now unite forces, go into partnership, and run business on a larger scale. We shall still run the home-apiary for comb honey and the out-apiaries for extracted. A few years ago we started with two colonies of bees. We now have in the home-apiary eighty strong colonies and have sold enough bees to pay all expenses, and have had our honey for profit. We were not always successful; had considerable to learn. first was not to be in too great a hurry to get a big count in colonies. Less count and more strength is better. Then there were many other things to learn; but conventions, good reading, and experience have taught us considerable, and we are still willing to learn.

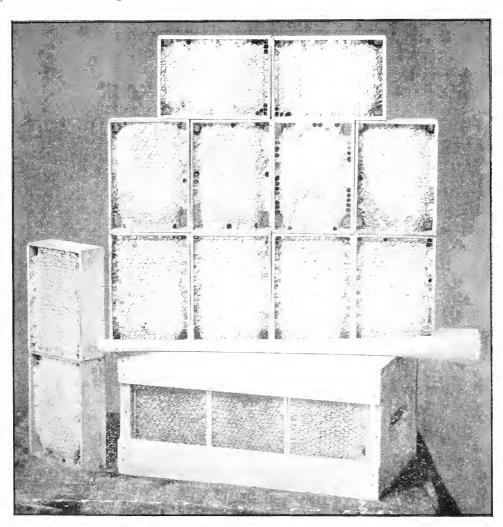
SUMMIT CITY, Mich., Feb. 12, 1901.

ATERAL COMMUNICATION
IN THE SUPER LEADS TO A
BETTER FILLING OF THE
SECTIONS. BY LOUIS

SCHOLL.

A most important feature in producing the best filled sections of comb honey is free, lateral communication; especially right around the edges of the sections. sections and separators during all that length of time.

First, let me show some proofs by giving pictures of results. No. I will show the difference of filling when used with two different kinds of separators in one super, viz., Root's fence, and Hyde-Scholl separators. The Esections were filled and completed in the same length of time and in the same super. Is there



CUT NO. 1.—Two Upper Tiers Built With Fence Separators;

THE REST BUILT WITH HYDE-SCHOLL SEPARATORS.

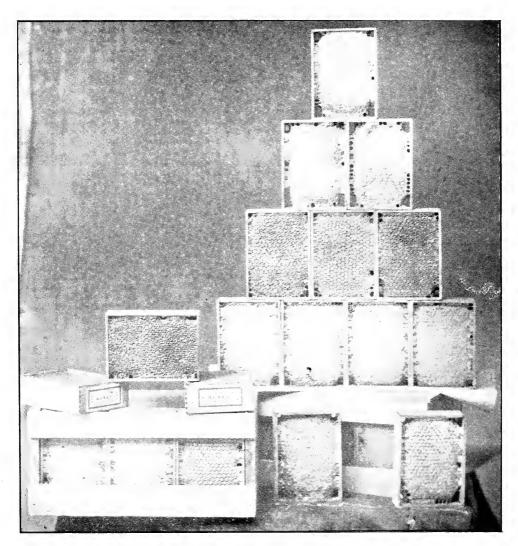
Some may wonder if this can be proved. Mr. Thompson says it *should* be done, and he is right.

I have been experimenting along this line for over three years, and perhaps it would be interesting to see an account of nearth and exists made with

not a difference? Mr. Thompson can tell us what per cent. of difference there is. Please notice how the combs are finished off next to the wood of the sections. Although the cleats of the Root's latest fences are as narrow as can be made, that is, do not extend inside of the sections,

yet the bees rounded off the combs of such, while the combs of the other sections are capped almost even with the wood-edge. This can be seen best when looking at the two sections standing up in the left of the photograph No. 1.

Last season was not at all favorable for the production of well-filled sections, that is, for the common, old-style, sections, of which I have some in my yards, darker sections in the photograph No. 2 will give an exact idea of how well-filled the sections were with the Hyde-Scholl separator. When such a flow stopped, the bees would put the little honey, that could yet be found, into those outside cells, next to the wood of the sections, and finish them up, instead of storing this honey into some of the next combs. The upright slot in the separator is the



CUT NO. 2.—Two Upper Tiers Built With Fence Separators; The Rest Built With Hyde-Scholl Separators.

yet I produced sections during a little flow that came in a sort of spurt, and then stopped, causing a number of supers with six or eight sections to be filled in the center, while the next sections to these were scarcely touched by the bees. The cause of this, as bees are not apt to leave any such open cells upon the surface of such combs—they are filled and capped over. The wood of the sections, as I said in my first article, seems only as so many cross-sticks in a frame.

There is also the point of free communication across, between the rows, which is also a great essential, in that it allows better clustering of the bees throughout the super.

Mr. Thompson tells of the method he employed with fourteen supers which he used in his experiment; using open-sided sections on one side and closed sided or ordinary on the other, without separtors; showing an average of 23 per cent better filling of the open-sided sections which had free communication between their edges.

He says "Why did not Mr. Scholl tell the readers of the Review this? Is it because the result was so trifling that it disappointed him?" Why, is it not time enough yet to do so? But as I did not intend to give any minute accounts of this matter in my last article I think I have plenty of time to do so. Was the result of my experiment so trifling that I was disappointed? Why should I be? To tell how well filled those sections were, I have only to refer the readers to the photographs.

Then, as regards strain of bees, condition of colony, and character of flow, with reference to good filling of sections, I must say that communication as I have advised, no matter how good the conditions are for the production of fancy comb honey sections, is still essential. the features of such separators are a good thing during a time when such favorable conditions are not present, then there is no reason why sich should not be a good thing when those conditions are all present. If a fancy article can be obtained during the former, a still more fancy article will be obtained during the latter, as proved to be so in my experiments.

Now for my report of last season's experiments; fourteen colonies, eight in eight-frame dovetailed hives and six in my ten-frame divisible brood-chamber hives were used, upon which I put 18 Ideal supers with pattern slats and tall plain sections 1½ x 35% x 5.—II eight-frame supers holding 30 sections each,

and 7 ten-frame, with 35 sections each. The Separators were Root's latest fences and Hyde-Scholl separators arranged difrerently in several supers, great care being taken to have conditions alike for either kind. It will be noticed that by using these two styles of separators, while all the other features were equally present in both, the free-lateral communication was present only in the Hyde-Scholl—the cleats of the fences obstructed this. The colonies were all in fine condition while the honey flow came in spurts, sometimes very slow, at other times the bees had all they could do. The result of the test shows in the photos. I have also taken several lists of careful weighings of the different kinds of sections and the following will give an idea of the average of a lot of sections.

Mesquite honey in tall sections, produced between Root's fences.

Total weight of 6 sections

Average weight of each

Heaviest weight of sections

Lightest weight of sections

14¾ oz.

Mesquite honey in tall sections, pro-

duced between Hyde-Scholl separators.

Total weight of 6 sections

Average weight of each

Heaviest weight of sections

Lightest weight of sections

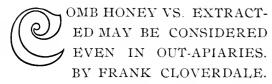
15¾ oz.

14¾ oz.

This shows a heavier section, filled and finished better in a given time. It will be remembered that I have said the *same length of time* in which the sections were filled, and this is very important, for if supers are left on the hive till all the sections are filled and completed, we fail to notice one very important feature of such separators, as the sections between such are nearly always completed before the others and finished nicer too.

The results of my experiment show that more sections can be produced in a certain time, better filled, weighing more and finished nicer, with the Hyde-Scholl separator.

HUNTER, Tex. Mar. 10, 1901.



I see by the January Review that you advise extensive keepers of bees, everywhere, to produce extracted honey. Such advice would seem to apply best where a first class article of comb honey can not be produced. It is very good for the buckwheaters of New York, where very little else except dark honey is to be had. Here is Eastern Iowa our crop is nearly all secured from clover, basswood and heartsease, all of which make a first-class article in comb; heartsease falling only a little behind in the market. We are not far from the great central market; a thing of some importance to a comb honey producer.

We use full sheets of extra thin foundation in all sections, and think 20,000 pounds in comb can be procured just as easily as 30,000 can be produced through the extractor, if allowed to ripen properly so as to be handled without becoming soured. Clover honey is thin when first gathered and must be partly capped before extracting. Basswood and heartsease can be turned out sooner because thicker when gathered. Honey from these sources will also be capped much quicker in sectious. To sum up the matter, when full sheets of foundation are used in the sections, together with what bait combs one will naturally have on hand, two-thirds as much honey in the comb may be produced as can be secured by extracting. At 7 cents per lb. for extracted, 30,000 lbs. will sell for \$2,100, while 20,000 lbs. in comb at 13 cts. brings \$2,600.

What about the 200 lbs. of extra thin comb foundation? some one asks. We sell all of our honey by actual weight. 20,000 sections weigh 1,000 lbs. They cost \$50. and and sell again for \$130. 200 lbs. of foundation, at 50 cents a lb., costs \$100, and when sold again at 13 cts. brings \$26. Cost of both, \$150; selling

price, \$156; leaving on hand \$6 more than cost for sections and thin foundation. If my estimates are correct, we have a profit of \$500 in favor of comb honey. Shipping cases cost about the same in each.

Four hundred colonies is the basis from which I have figured, and two persons can very easily care for the above number during the 30 days of swarming; and one man can do the work during the rest of the season.

We ran four yards for comb honey last season, procured nearly an average crop, had excellent success in caring for the bees all through the swarming season, and if my methods work as well the coming season as in the past, I shall be only too glad to help others.

My experience has been for 25 years, and I most heartily endorse your views on *keeping more bees*. It is the right thing to do if one wants to make more money. Keep adding another out-yard, and soon you will have a bank account if all are properly managed.

MAQUOKETA, Iowa, Feb. 15, 1901.

[Friend Coverdale, I fear I did not make my meaning so clear as I might have done in that editorial on "changed conditions." The point that I wished to bring out the most clearly was that many bee-keepers failed because they did not keep enough bees. They ought to keep more bees, scatter them around the country, and then manage them in the most economical way. I mentioned the extracted honey, in preference to comb, because the great majority of bee-keepers can manage out-apiaries and prevent swarming much more easily by producing extracted honey. I know that swarming can be prevented, even in out-apiaries managed for comb honey, and, if the man, the locality, and the methods, are adapted to comb honey production in outapiaries, I say amen with all of my heart.—Ed.]



N. E. France has gotten out a very useful little pamphlet on Diseases of Bees and Legislation, giving the causes, symptoms, and treatment of contagious diseases among bees, and describing the legislation that is needed in coping with these diseases. It is intended for free distribution among Wisconsin bee-keepers—others ought to send some stamps when asking for it—say 25 cts.

COMBS of solid honey may be placed in the brood-nest when hiving swarms, and the honey brought in will of necessity be carried into the sections. M. Friedman Greiner mentioned this at one of the York State Institutes, saying that he had frequently practiced the plan, and, in addition to being compelled to put the new honey above, the bees are also obliged to remove much of the honey from the combs put in the brood-nest, and carry it up into the sections, in order to make room for a brood-nest. By this management not only is the newly-brought-in honey put into the sections, but any combs of first-class honey may be "worked over," so to speak, into section honey.

BEES ON SHARES is a subject in which a subscriber in Wyoming is interested. The man who takes bees on shares usually boards himself, furnishes a place for the bees, and does the work for one-half the honey. The increase belongs to the owner; and, of course, the hives for the inrease is furnished by the owner. Each party pays one-half the cost of sections and foundation to fill them, and each furnishes his own shipping cases; but the one who manages the bees, cleans and crates the honey. In some cases I believe that half the increase, as well as half the honey, has been given to the one who does the work, but I believe that the increase ought always to go with the apiary. I shall be glad to hear from others on this subject.

LTYPERENTER

STARTING OUT-APIARIES.

The Review has given some most excellent articles upon this subject, but I think nothing will be gained by publishing any more on the subject. While it is true that many bee-keepers who are "grubbing along" with less than 100 colonies, might make money if they would enlarge the borders of their business, it is equally true that it would be foolish for any one to dash headlong into the establishment of several out-apiaries. Let the man who is in position to do so, start one each year until he reaches the top of his In this way there is not much chance for failure—that is, a failure of the whole business of bee keeping It is also true, as suggested by Mr. Gilstrap, that a man may be so situated that it is better for him to manage only one apiary and something else in connection with it. Each man should thoroughly understand his own business, and make the best of it, Sometimes there are possibilities in a man's business that he does not see until they are pointed out to him, and that is what the Review has been trying to do.

QUEENS AND THEIR INFLUENCE UPON SWARMING.

Somewhere, within the last few days, but I can't recall where, I have read that, so long as the queen continues to increase the number of eggs that are being laid, that is, so long as her laying capacity is increasing, so long there is no danger of of the bees swarming. Let her begin to flag, to fall behind, or even to keep along on an average, then look out for swarming. If this assertion is true, it might be something of an explanation of how the introduction of a young queen usually prevents swarming for that season. There is also another way of looking at

this problem, and that is this: Do the bees swarm because the queen slacks up in laying, or does the queen slack up because the bees, wishing to swarm, withhold food from the queen? If the introduction of a young queen prevents swarming, and it did with me, it would seem to show that the witholding of food by the workers had nothing to do with it; food could be kept back from a young as well as from an old one. On the other hand, I remember that my old neighbor, Chas. Koeppen, once brought me a queen that he had tried to introduce to a colony having the swarming fever. don't know as he had any trouble in introducing the queen, but she didn't lay. I introduced her to a rather weak colony, and she began laying the next day. theorized at the time that she didn't lay because the bees didn't wish her to laythey wanted to swarm. This whole matter is one that we need some experiments upon. Something practical might come of it.

THE ROCKY MOUNTAIN BEE JOURNAL.

In my opinion this journal starts out with the most cheerful prospects for success of any journal that has started in



many years. This being the case, it may be of interest to know how and why it was started, and also to know a little bit about its editor and proprietor—Mr. H. C. Morehouse.

He is 32 years old; handled bees in Ohio in his boyhood's days; always loved them and kept posted in the various advances being made in handling them. About four years ago he went to Colorado, and, in company with another gentleman, started a weekly, country newspaper. He soon found

that, unwittingly, he had landed in a beekeepers' paradise. His old love for the bees returned with added fervor, and he became the owner of a few colonies. remained in the newspaper business two years, when the marvelous yields of honey convinced him that there was more money in keeping bees than in running a small newspaper. The interest in the newspaper was sold to his partner, and the proceeds invested in the bee-business. The present season will find him running about 140 colonies. He was not long in discovering the need of a bee journal devoted to the peculiar conditions of the arid West, and at once decided to begin the publication of such a journal upon a basis that could weather the storms through to success. He not only understands bee keeping, but has had experience in the business and mechanical part of getting out a journal. Not only this, but he had the good fortune to marry a printer-girl who sets most of the type for the journal, while the editor sets the ads. and does the presswork. the Review, the Rocky Mountain Bee Journal is home-made, and, likewise, I expect to see it prosper.

THE NATIONAL ASSOCIATION TO MEET AT BUFFALO NEXT SEPTEMBER.

As I have for a long time expected would be the case, the National Bee-Keepers' Association has at last decided to meet in Buffalo. The meeting will be in September, and one very important feature is that at least one session is to be a joint meeting of the bee-keepers and of the American Pomological Society. feel sure that much good will come from such a meeting. I doubt if the world has produced a finer exposition than the Pan American will prove to be, and there is certainly no grander sight in Nature than that of Niagara falls; taken all in all, few bee-keepers east of the Mississippi can afford not to attend the coming meeting of the National Association; and I hope many of those in the West can afford to

come. I have just received from the Secretary, Dr. A. B. Mason, the following very gratifying notice:—

Editor Bee-Keepers' Review:—Many inquiries have been received by the Executive Committee of the National Bee-Keepers' Association regarding the time and place for holding the next convention of the Association. The reply has generally been that Buffalo, N. Y., would be the place of meeting; but not until this morning, April 17th, has the date of the meeting been settled upon.

On March 2nd the Secretary of the American Pomological Society wrote President Root in part as follows:

"As bee-keepers and fruit-growers have may interests in common which could be considered and discussed with mutual profit, our Executive Committee has instructed me to hold a joint meeting at some time during our session, the exact time to be decided later by correspondence.

At this meeting we would suggest that the subjects of discussion center round the general topic of the mutual relations of bee-keeping and fruit-growing, . . which can be briefly treated by speakers selected in advance from among our prominent bee-men and fruit-men, . . in order that a better understanding of these mutual relations may be reached. . . It has been suggested that a considerable portion of fruit growers do not yet appreciate the preponderance of the benefit derived. It is felt that a full public discussion of the subject would, therefore, result in good to both industries."

Realizing, as the Executive Committee did, that this was a golden opportunity for presenting the bee-keepers' side of the subject to the representative men of the fruit-growing industry, the invitation of the Pomological Society was at once accepted by the committee in behalf of the Association.

We have had to delay the fixing of the date for our convention until the Pomological Society had fixed their time of meeting. Our convention will be held on the 10th, 11th, and 12th, of September next, commencing on Tuesday evening the 10th.

We were at first undecided as to place of meeting, hoping that the G. A. R. would meet at Denver, Col.; but when it decided to meet at Cleveland, and we received the invitation of the Pomological Society, we felt that we ought not to miss such a splendid chance to enlighten some of them on the relation of bees to horticulture, and, by meeting at Buffalo, the York State and Canadian bee-keepers would be within easy reach of the place of meeting; so we at once fixed on Buffalo as the most desirable place

It has been decided not to have any papers or essays, but to rely wholly on the question-box to bring out the best and most important matters for discussion, so that any one not being able to be at the convention, having any question or questions they may wish to have discussed, can send them to the Secretary at any time.

The Committee has taken the liberty to request the Secretary of the Ontario Bee-Keepers' Association to ask the members of that Association who may attend the meeting at Buffalo to bring their badges with them and wear them at our sessions, whether they are members of our Association or not, so that we may feel more as one, and know who our progressive neighbors are.

Information regarding place of meeting, entertainment, and railroad rates will be given as soon as decided upon. Don't be in a hurry about securing a sleeping place during the convention. There is plenty of time, and, later on, better rates can be secured; but if you are in a hurry, write to the Young Men's Christian Association, and don't be bled by "sharks"

A. B. MASON, Sec. Sta. B, Toledo, O.

KEEPING BEES IN CITIES AND VILLAGES.

Much has been said and done in defense of bee-keepers who keep bees inside of corporated cities and villages, but there is another side to the question. Bees may become a serious annoyance, if not a positive nuisance, to those living near the apiary. To manage an apiary with neighbors living near requires good natured bees, a skillful apiarist, and one, withal, who is blessed with a large share of tact, and who is well liked by his neighbors.

I was recently sent by Manager Secor to investigate a case of alleged persecution in a village in this State. The council was threatening to pass an ordinance prohibiting or controlling the keeping of bees inside the corporation. I found the beekeeper more to blame than his bees or his neighbors. According to reports, he seemed to delight to "stir up" his bees, which were hybrids, in the middle of the day during a dearth of honey; sometimes arousing them to such a pitch that he was obliged to beat a retreat himself. At such times it was impossible for neighbors to step out of doors without being chased in by a swarm of angry bees. If they escaped without a sting they considered themserves fortunate. To add insult to injury, the bee-keeper would laugh and jeer. When asked to move his bees away he

would fly into a passion and swear that he would not, as he "was a member of the National Association, and that body would back him up." I also found that much of the trouble arose from fear based upon ignorance, all of which might have been removed by a little neighborly explanation.

I told the bee-keeper it was possible that, according to law, he might go on keeping his bees right where they were, and it was also possible that the Association would help him if the common council tried to force him to move them, but considering how his bees annoyed his neighbors, my advice to him would be to move the bees outside the village if he could possibly do so. I think he will do this.

I kept bees here in Flint for more than a dozen years, sometimes having 40 or 50 colonies, and they stood within two rods of the street, and some of them not a rod from a neighbor's back door, and in all that time I never heard one word of complaint. I doubt if a neighbor was stung. My bees were peaceable Italians, and, if I had occasion to open hives when no honey was coming in, it was done just at dusk when the bees would not fly far from the hives, and robbers would not trouble. By morning, all would be quiet.

EXTRACTED.

FOUL BROOD.

Half Treatment Results In Too Many Failures.

More attention is now being paid to the suppression of foul brood than there has been before in a long time. Michigan and California have new laws on the subject. Colorado, N. Y., Wis., Utah and Ontario have foul brood Inspectors. The season when this dreaded disease can be fought is now at hand, and it is well that every one should know the best method

of treatment. Mr. N. E. France, of Platteville, Wis. who has done most efficient work as foul brood Inspector of that State, has recently gotten out a most excellent little pamphlet on the subject, and the last issue of the Canadian Bee Journal has a good article on the subject from that old veteran Inspector, Wm. McEvoy. Mr. McEvoy says:—

In the Canadian Bee Journal for January, 1901, I see that Mr. Pender, editor of the Australia Bee Journal, advises the hiving of foul broody bees on starters of comb foundation as a pretty sure way of curing the disease.

I judge Mr. Pender to be a good beekeeper and a man that would treat his colonies before they became bad with foul brood, and then doing his work so carefully and so well that he made a success of curing all by hiving the bees on starters of comb foundation.

The number of cures that can be made that way will depend entirely on the following conditions:—

ist. On how little diseased honey the bees find to take out of the old combs when they are being removed.

2nd. Where much of the honey in a foul broody colony is badly diseased every thing will depend on whether anything is to be placed above the queen excluder to catch the diseased honey after the bees are given the starters if the starters are not to be removed.

In the honey season of 1875, while curing my own apiary of foul brood, I took all the combs out of several diseased colonies and left the bees to build combs on the bare frames and in a short time I had about as many failures as I had cures. This method cured every colony that was not bad with the disease, but failed on every colony that had been bad with foul brood and had a good deal of unsealed honey in the brood nest when the old combs were removed. Just as soon as the bees had a little comb made they stored part of the old diseased honey in it and a little later on foul brood made its appearance again. I then resorted to taking away all the new pieces of comb that the bees made during the first four days and let them keep what they made after that. This plan thoroughly cleansed the bees of all the old diseased honey and ended in perfect cures. I also cured many colonies that summer by the use of clean combs and frequent use of the honey extractor, and in the fall of that year after brood rearing was all over, I cured quite a number of foul broody colonies by shaking the bees on to sound sealed stores. This plan left the bees no place to store the diseased honey and forced them to keep it until they consumed it and that ended the disease.

All of these plans and methods I studied out twenty-five years ago last summer and fall when I had to treat 50 out of 60 colonies in my own apiary for foul brood.

When foul brood matter is drying down it glues itself fast to the lower side and bottom of the cells and there it will remain as long as the comb lasts, and during honey flows the bees store honey in many of these diseased cells and after that foul brood is spread through a colony in proportion to the amount of honey that is fed from the diseased cells to the sound larvæ. In the honey season when we are taking the colonies to cure them, the bees (finding the unsealed honey so handy with no uncapping to do) rush into the open cells and take all they can hold, and where many of the diseased cells are full of unsealed honey (as they usually are at such times) the bees will get pretty well filled up with diseased honey before ali the combs are removed. To cleanse the bees of this honey I give them starters of comb foundation, and in four days the bees make them into little pieces of comb and store the diseased honey in them. I then (in the evening) take away all the comb that the bees made in the four days and give them full sheets of comb foundation, and before this is worked out the cure is complete. This is the safest and most practical method for all classes of bee-keepers to follow and one that never fails. It is one thing to cme an apiary of foul brood and quite another to do it and make more or less increase and have all colonies in grand condition when the season closes, and this can be

When I am examining an apiary I mark each colony according to the condition I find it in. I put one pencil cross on the front of the hives that are strong in bees and have only a little of the disease, and two crosses on those that have less bees and more disease, and three crosses on those that are weak in bees and badly diseased. In the evening in the honey season I pick out the weak colonies that have the three crosses on and shake the bees of every three into an empty hive, so as to make good big swarms to start with, and then give them the starters, which are to be removed in the evening of the fourth day, and full sheets of comb foundation put in their place I take the hives next that have two crosses on and put the bees of every two of these into an empty hive and then treat them. I then remove the combs out of the hives that have one cross on and shake the bees right into the same hives and treat them.

Where I find only a few cells of the disease in colonies that have large quantities of nice sound brood, I save this brood with some bees on it and fill up two-story hives with it. I then set these hives back a little distance from the others and when the most of this brood is hatched I go in the evening and shake the bees into a single hive and treat them and give them a queen.

The increase of colonies that I make by hatching out the best combs of broad during the honey season (which is the only safe time to do this) more than makes up for the old bees I united.

All curing and treating of diseased colonies should be done in the evening, so as not to have any swarming out and mixing in with others, or bees returning to the old stands after they have been united with others.

This same method of curing can be carried on at any time from May to October when the bees are not gathering any honey by feeding plenty of sugar syrup in the evenings to take the place of a honey flow.

All the old combs and pieces made in the four days should be made into wax by the Gemmil Press, which is by far the best in the world for getting the largest quantity of wax out of old combs and doing it in the shortest possible time.

BEE-KEEPING AS A BUSINESS.

If it Can Not be Followed at a Profit, by Itself, it Better be Dropped.

I am working hard to wake up beekeepers, to get them to realize that their business can be made to compare favorably with other pursuits, that there is no necessity for combining some other business with bee-keeping in order to succeed, and, in line with this idea, I find the following article, by F. L. Thompson, in the March Progressive Bee-Keeper. Mr. Thompson writes as follows:—

An extraordinarily good season near Denver, together with a scarcity of honey in most parts of the country, has caused many who know little or nothing of beekeeping to turn to it with a view to profit. They do not realize that this is an exceptional season; they only see the results. Even in ordinary seasons, however, there seems to be a general impression here that apiculture is wonderfully remunera-"There's lots of money in bees, isn't there?" is almost sure to be the query put, sooner or later, by my casual acquaintances, when they learn that I keep bees for a living. It is a mystery to me how this opinion has become so widespread. I have generally answered this in an off-hand way, as one will conversationally, for the sake of saying something, by saying that there is some profit in bees, but nothing extraordinary, and then it takes both capital and experience But I am not sure that to get it out. this off-hand answer, while it is true enough, is quite competent to create the right impression in the minds of these off-hand inquirers. It is apt, as off-hand conversational remarks are, to get itself remembered by its most striking portion —that there is some profit in bees; and the necessity for capital and experience is apt to be but slightly regarded; and the result of the true answer may be a false impression. People will think "Some profit in bees—hum—well, with a little capital, and a little experience, I can make a little profit too—and that's no less than I am doing at my present business. I'll try it." But a little experience is enough to make bee-keeping in years of ordinary crops and pay prices of honey and supordinary plies, and ordinary competition. A little experience lets too many chances of saving money leak away, so that beekeeping becomes inferior to other occupations on which the same amount of energy is expended with more ability. other words, make bee-keeping a business, or don't go into it all.

"But," says the reader who always remembers things, "I read in a bee-journal not long ago that bee-keeping as a business is too uncertain, and hence should not be made the sole dependence. So I shall be obliged to give my fruitgrowing, or farming, as much attention as my bees, and I cannot make bee-keeping a business in a strict sense; I cannot

make a specialty of it."

Now what shall we say to these people, the careless and the thoughtless ones? To the careless ones, those who are possibly no more than conversationally interested, but who make the general impression of bee-keeping what it is, by

handing on what is said to them, had we better not say right out, and say with emphasis "There is not much money in bee-keeping," putting that phrase first, and then continuing in an ordinary tone of voice, "for the amount of capital needed, and the amount of experience required to get average results from a given amount of capital would pay just about as well in fruit growing or gardening." Something of this sort seems to be necessary in order to correct the inordinately exaggerated ideas current. It is strictly true, and contains as much of the whole truth as your offhand conversational interlocutor can possibly be made to remem-If you try to tell him as much as you could safely say to a thoughtful questioner, he will forget all except that there is money in bees.

But on the other hand I would suggest to those who are thoughtfully inclined that bee-keeping as a business has been somewhat indiscriminately run down. Bee-keeping is uncertain, sure. But if in the spring of 1896, when with very few exceptions the bees for ten miles around Denver either perished or were rendered useless for that year, from an unknown cause, which has not happened before or since, I had had part of my bees twelve or fifteen miles from Denver instead of having them all nine miles from Denver, I'd have escaped with half the loss, and would have been farther ahead to-day, instead of wholly losing that year, and then working with other people's bees four years more, having no bees of my own Again, if in again until the last year. 1898 a person had had one apiary say six miles north of Montrose, and another say six miles south of Delta (these towns being twenty-five miles apart), he would have had half a crop; but if all his bees had been near Delta, he would have obtained scarcely anything. Again, if a person had had one apiary in 1900 at Lupton, and another near Denver, he would have obtained about twice as great a crop as he would by having them all at Lupton. In fine, those who emphasize the uncertainty of bee-keeping as a business are not telling the whole truth. The uncertainty is greatly lessened by having one or more out-yards at some distance And when that away from each other. uncertainty is lessened to the degree that it is by having several apiaries in different places, is bee-keeping a whit more uncertain in the long run than fruit-growing or farming in one place? I trow not. Hark, in your ear; if all bee-keepers were

specialists, their number would be so les-

sened that bee-papers would either have to charge five dollars a year, like medical journals, as has been suggested, or go out of the business. It's an uncertainty of bee-journalism, you see, not of bee-keeping. Let the galled jade wince, our

withers are unwrung.

Now let facts speak. The heavy producers at Denver and Montrose are almost all *specialists*. They depend on beekeeping only for a living. There are just enough exceptions—I think of four or five) in Colorado to emphasize the rule. Why is it? There can be but one reply: because, as a whole, specialty is more profitable for the average man than a mixture of pursuits. Why is it more profitable?—there is a chance for theoretical discussion; but the fact remains that it is.

In this connection it is amusing to remember how a certain writer once proclaimed that if there was a single man, woman, or child in the United States who made a specialty of bee-keeping, he should hold up his hand. Pure bluffing, that. Of course it was successful. Bluffing generally is, else it would not be practiced. I believe just two held up their hands. Are we to conclude that there are just two bee-keeping specialists in the United States? O you innocent

readers of bee-papers!

The majority of those who keep bees, here in Colorado as elsewhere, are not But that is not the point. specialists. If the majority of those who produce honey in quantity are found to make that their exclusive or main business, then "bee-keeping as a business" is not nearly so uncertain as these make out who call everyone a bee-keeper who keeps bees. Probably much of the false impression on this subject is due to the fact that outside of our own county, few of us know of these bee-keepers in other counties or states whose names never appear in the bee-papers. There are a number of beekeeping specialists in Colorado whose names are never known to more than their neighbors and the secretary of their state association. May this not be so in the Eastern states as well? Judging from the discovery by the Review every now and then of a new owner of two or three hundred colonies, it would appear so. Now, do any considerable number of those who produce honey in quantity in the Eastern states make it their exclusive or main business? I don't know. is evident from what I do know that these editorial generalities that appear from time to time on bee-keeping as a business have been throwing a certain quantity of dust in our eyes-how much, I don't know

I don't know, but suspect, that Dr. Miller, of Marengo, has had something to do with writing or inspiring those editorials. At any rate, his case will do for an illustration. He has one or two out-apiaries, and has had failures for three years, I think, in succession. ought to be justified, then, in asserting that bee-keeping as a business is, for him at least, mighty uncertain. But then, that could only follow for the locality of Marengo; a general statement could not be made without comparing a number of representative localities. Has that been done? If so, there is no sign of it; just the conclusions are given, the "thus saith the editor'' (or editorial writer) being held sufficient. Perhaps it is; in some things. In others, and this is one of them, the specific evidence would be preferred. Another thing that has always puzzled me is that Dr. Miller has no other visible means of support except bee-keeping, unless writing, and that cannot cut much figure. If it were too uncertain as a business, he wouldn't be in it, making it practically his sole depend-If he has been making the fat years feed the lean ones, even three of them at once, then bee-keeping can not be said to be a failure as a special business even in his case. Let us have more light.

Apart, and yet connected in one way, from the question of profit in bee-keeping as a specialty, is that of the desirability, for those mainly interested, of having our ranks composed of specialists or nonspecialists. If it pulls our profits down to compete with non-specialists, then it should be made a point with us to be informed on the question of whether specialty in bee-keeping pays better than nonspecialty; because if it does, then we can with a clear conscience say to would-be non-specialists "Keep out. I advise you this for your own good as well as my own." If it does not, then we must grin and bear the pulling down of our profits as best we may, for it would not be hon-

orable to do otherwise.

Now, I think specialty in bee-keeping does pay better than to keep bees as a side issue. I also think that bee-keeping as a specialty no more than holds its own with other occupations. Obviously, then, I also think that the keeping of bees as a side issue does not pay, when compared with the results that might be obtained from putting the same capital, energy, and time into one's main business, whatever that may be. Therefore I can

with a clear conscience say to the prospective bee-owner "Don't. Either make it a business, or keep out of it. I know it will be for my gain if you keep out, but I honestly think it will be for your gain too." This I would say from the standpoint of profit alone; but to the genuine amateur, to him who would keep a few colonies for the love of the occupation, I would by all means extend a helping hand. His pleasure in the occupation is also a profit, and bars my right to advise on the score of profit.

Now, does this competition of nonspecialists injure the trade of special-I have been taking it granted, because it is so evidently true. But a few years ago a well known writer proclaimed that the farmer beekeeper is our best friend, because his inferior product furnishes a standard to measure our superior product by, and we thereby get better prices than we would if all the honey in the market was superior, so that there would be nothing to compare it with. Plausible, isn't it? But it contains a fallacy just the same. It may be true if there were just enough of the inferior honey scattered around to furnish a standard of comparison, and no more. But there is more than enough, much more; and it is that of bulk inferior honey which injures The buyers and commission men are always on the lookout for a lever to force down the price of honey, and do not neglect so excellent a chance; not they. "Why, I can get all the honey I want for so and so much less than you ask me,"that's the song, and a very old and wellworn song it is in this neck of the woods. If that writer should come to Denver, and either produce or deal in honey here, and promulgate that idea of the farmer beekeeper being our best friend, he would be considered by his co-workers to be a greener specimen than any farmer. Not only does the average farmer bee-keeper produce an inferior article, which of itself pulls down the price of the good honey, but even if he produced good honey he would not sell it for as much as it is worth, and he sells his inferior honey for less than it is worth He has other interests. His all is not staked on his honey crop. He will not organize, as specialists do, in the West at least. (By the way, the writer referred to has always talked against organization to sell honey.) loses more honey, in the shape of runaway swarms, than he gets as surplus, and you can't teach him any better. short, as a bee-keeper, he does not profit himself, and he isn't wanted.

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Objects of the Association.

To promote and protect the interests of its. members.

To prevent the adulteration of honey.

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The best and cheapest way for a beginner to start, is to buy a good doe with a litter five or six weeks old. We now have 200 does with litters, and they are going at prices asked by other large breeders for a DOE ALONE. Our specialty is DOES WITH LITTER OF YOUNG—proven breeders. does of en prove worthless breeders, and some dealers dispose of them to the other fellow. The young that go free with our does will be worth twice the purchase price when they are 6 months old. This makes the safest and most satisfactory old. This makes the saiest and most satisfactory proposition for a beginner. Authentic pedigrees with all hares sold. We are the largest breeders of thoroughbred Belgians in Central U. S. We guarantee satisfaction on all shipments; and our guarantee is good. Book giving history and com-plete information; also book of pedigree blanks given to each purchaser. Write for descriptions and prices.

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We have just printed a new edition of this fine work, bound in flexible leatherette cover, with round corner. The price, postpaid, is 60 cents; or, with the **Weekly American Bee Journal** the rest of 1901 (from the time your new subscription is received)—both for only \$1,00. Better order AT ONCE if you want a bargain. Remember we are

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My Bees Are Swarming,

and, to keep down increase, I will ship, from May 1st, full colonies of Italian bees, with queens, in D. T. hives, or light shipping boxes, six L. frames of bees, brood and honey, one for \$3.50; five for \$16.00; ten for \$30.00. My bees are good honey gatherers, white cappers. Having 15 years' experience, I put them up so they go through O, K. Safe arrival and satisfaction guaranteed to all who order in May. Tested queens, \$1.00.

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I have several hundred

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QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

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MY GOLDEN AND LEATHER - COLORED

Italian Queens

Are bred for business and beauty. I furnish queens to the leading queen breeders of the U. S., and have testimonials from satisfied customers in the U. S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

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Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

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THE JENNIE ATCHLEY CO.,

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R-I-PANS

There is scarcely any condition of ill-health that is not benefited by the occasional use of a R. I. P. A. N. S. Tabule, and the price, 10 for 5 cents, does not bar them from any home or justify any one in enduring ills that are easily cured. For sale by Druggists.

The Best Bees.

\$\$\$\$\$**\$**\$\$\$

As I have several times mentioned in the editorial columns, my object in life is the good of bee-keepers. That I earn my living while thus engaged, makes me none the less sincere. In my younger days I taught several terms of district school. After securing a school I forgot, for the time-being, that I was earning money. I went in to teach those children, and do them all of the good that I possibly could. For weeks at a time, the thought never came to me that I was working for wages. I should be doubtful of the success of a teacher who taught simply for money. Now I am working for the good of beekeepers. As in the case of school teaching, I have become so interested that I often forget that I am earning my living by the work that I am doing. I should also be doubtful of the success of a bee-keeping editor who worked simply to make money. With that object in view, there are other occupations in which he could engage to better advantage.

I am trying to get bee-keepers to keep more bees, scatter them around the country, and learn to manage them with the least possible labor. I am trying to get bee-keepers to organize and secure the benefits of co-operation. I am trying to arouse them to the danger hanging over their heads from contagious diseases among bees, and to get them to bestir themselves and rid the country of these plagues. I am also striving to show them the importance of improving their stock-that there is just as much difference in bees as in other stock. Not only this, but circumstauces have been such that I have been able to discover what, I am thoroughly convinced, is a strain of bees that are the equal, if not the superior, of any bees in this country; and I am trying to scatter this stock through the country. As I have said before; that I am earning my living while thus engaged does not make me any less sincere.

These bees are the dark, leather-colored Italians. They are gentle, industrious and hardy, and cap their honey as white as do the blacks. No bees, that have had their tongues measured, have shown a greater tongue-reach than have these bees. While there is little doubt that length of tongue and superior honey gathering

qualities go hand in hand, it has not yet been PROVED, while it HAS been proved that THESE bees are very superior, whether it is from length of tongue or not. The price asked for these bees is higher than for com, on stock, and ought to be; superior stock always sells for more than common stock or scrubs. The Roots are now asking \$10.00 for a queen whose bees show a tongue reach of 19-100; \$15.00 for one whose bees show a reach of 20-100; and \$25.00 for one whose bees have tongues measuring 21-100; and it is all right to ask these prices. I hope that Mr. Root will sell a lot of these queens, as, the more such queens are scattered around the country the better stock will there be. Only a queen breeder, or some one with a large number of bees, could afford to pay such prices, but the ordinary bee-keeper can afford to pay the \$1.50 that I ask for a queen; and, while I do not guarantee the length of the tongues of the bees that such a queen will produce, it is true that the mother of these queens produces bees having a tongue-reach of 21-100. Not only this, but I guarantee safe arrival, safe introduction, if directions are followed, purity of mating, and complete satisfaction to the extent that, if, for any reason, the purchaser desires to return the queen inside of two years, he can have his money back and 50 cents in addition to pay for his trouble.

Besides this, there is a way in which one can get one of the queens for only one dollar, and that is in connection with a subscription to the Review. For \$2 00 I will send the Review one year, and one of these queens. This offer is open alike to old and new subscribers.

As my older readers know, I do not breed these queens myself. They are reared by a breeder who is neither in the North, nor in the extreme South, but whose name I do not give, simply because, if I did give i . the orders would go to him direct, and I would lose all of the advertising that I have done. A man has to be selfish to a certain extent, and it is all right that he should.

I make in the neighborhood of 50 cents on each queen that I sell, and it is right that I should, but the man who buys one will make dollars where I make cents.

e want to sell you bee-keepers' supplies. to give you entire satisfaction.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties-Hives, Sections and Comb Foundation.

Cash paid for beeswax.

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We have one of Root's best red-clover breeders, from their \$200-queen, and a golden breeder from Doolittle, who says: If there is a queen in the U. S. worth \$100, this one is; these breeders have been added to our already improved strain of

queens, for the coming season.

J. L. Gandy of Humboldt, Neb., wrote us on Aug. 15th, 1900, saying that the colony having one of our queens had already stored over 400 pounds of housy (mostly comb). He states that the is certain our bees work on RED CLOVER, as they were the only kind in his locality and apiary.

A. I. Root's folks say that our queens are extra fine, while the editor of the American Bee Journal tells us that he has good reports from time to time. We have files upon files of unsolicited testimonials. After considering above evidence, need you wonder why our orders have increased each year?

Give us a trial order and be pleased, we have years of experience in rearing and mailing queens. Safe del very will be GUARANTEED. Instructions for introducing sent with each lot of

queens.

Warranted stock, one queen, 75 cts.; six, \$4.50; twelve, \$8.00; select warranted, one, \$1.00; six, \$5.00; twelve, \$9.50; tested, one, \$1.50; six, \$8.00; twelve, \$15.00; select tested, one, \$2.00; six, \$10.50;

Extra select tested the best money can buy, \$4.00. We have 100,000 **FOLDING CARTONS** on hand, and, so long as they last, will sell them with your address printed on in two colors, at \$4. per 1000; or 500 for \$2.75. At above prices you can't afford to place honey on the market without cartoning it

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We furnish a full line of supplies at regular prices. Our specialty is Cook's Complete hive.

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Honey Queens.

Have you noticed the change in my post office address? I am 200 miles further south; where the peach trees are in bloom, and the bees bringing in honey and pollen. Here is the place for early queen rearing.

Did you know that I am seeking to give my customers the best possible services

Did you know that I have as good, or

Better

than can be obtained elsewhere?

Many have found this out, and continue my best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES.

In March or April, tested or untested, \$1.00 each; six for \$5.00; one dozen, \$10.00; breeders, \$2.50 to \$5.00 each. Bees, nuclei and full colonies, for sale.

W. H. LAWS, Beeville, Texas.

LARGE APIARIES

wanted in in basswood regions of Mich. or Wis, H. W. FUNK, Normal, Ills.

Every bee-keeper knows the worth of

A Good Queen,

knows the worth of a good strain of bees, also knows how worthless is a poor queen and inferior bees. Our bees rank with the first, and queens stand second to none.

Choice, tested, Italian queens, \$1.00 Orders filled by return mail. Safe arrival and satisfaction guaranteed. Send for price list. J. W. K. SHAW & CO., Loreauville, La. 3-91-tf

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We send an experienced man, one who has been a bee-keeper, and is acquainted with the requirements of the bee keepers, to inspect the lumber we buy before it is shipped. We contract for sawed basswood. We accept no off-grades for our sections. We buy direct from the mills. We do sawed basswood. We accept no on-grades for our sections. We buy direct from the mills. We do not operate a saw-mill ourselves, because we believe that the saw-mill man can give us better lumber for the money; because that is his business. We believe that the manufacture of boxes, sections and bee-hives requires all the energy and care that we possess. Having selected our material, we employ the best known machinery for the purpose, and the best mechanics turn out sections that are superior to envelve manufacture. rior to any other manufacture. INTERSTATE BOX & MFG. CO., HUDSON, WIS.

Long-Tongued Queens!

By special arrangements with THE A. I. ROOT CO. to furnish them queens, I have secured their assistance in procuring the finest breeding queens that a thorough knowledge of the bees of the country and knowledge of the bees of the country and money can procure. Among them is a select daughter of their \$200 queen that they refused to quote me prices on. This queen shows every superior quality of her mother. Her bees show an actual reach of 21-000 of an inch; are large, gentle, and beautiful to leak upon.

beautiful to look upon.

MR. E. R. ROOT SAYS: "You have as fine bees as there are in the United States; and with a direct cross of their breeders you should be able to produce queens whose bees show a reach of 25-100 of an inch.

Messend for descriptive price list. Watch this space, and don't forget my long-tongue stock is the best that money and knowl-

edge can procure.

Prices: Untested queen, \$1.00; 6, \$5 00.
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APIARY NO. 2.

Imported Queens, Daughters and Granddaughters.

GOLDEN, OR 5-BANDED ITALIAN.

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Breeders, select tested, tested, and untested queens. ጜፈጚፈጚፈ ኯዾኯኯዄኯኯኯዾዀኯፙኯኯኴጚዾዀኯኯዀዀኯዀኇጜጜፚጜዾ*ኯ*ዾኯኯጜዹጙ<u>ኯ</u>

REMEMBER the bear picture goes as a premium on six queens. 1901, untested queens will be ready to mail March 25 to April 1st. Send in your order at once, and get in on the ground floor. Breeders, select tested, and tested queens go by return mail.

W. O. VICTOR, WHARTON, TEXAS.

QUEEN SPEC ALIST. ፟፝ቚ፟፟፟ቑቔጞጞጜጜጜጜጜጜጜጜጜጜጜጜጜኇዀኯኯኯኯኯኯኯጜጜጜጜጜጜጜጜጜጜዀኯኯኯኯጜጜጜፚዄኯኯ ፟፟

THE

A. I. ROOT CO.. 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight.

JOHN F. STRATTON'S



Importers and Wholesale Dealers in all kinds of MUSICAL MERCHANDISE. Violins, Guitars, Banjos, Accordeons, Harmonl. cas, &c., all kinds of Strings, etc., etc. 811, 813, 815, 817 East 9th St., New York

Imperial Strain of Red Clover Queens.



The largest queen rearing apiary in the North; the most HARDY BEES. the most gentle bees; and bees that work on RED CLOVER. Breeder direct from ITALY: workers' tongues measure 26-100—over ¼ inch in length. 22 years' experience; hundreds of nuclei; multitudes of choice drones; orders coming every day. Send your or-der and pay when queen is ready to ship. Can mail untested queens by June 10th, tested, latter part of Prices: Untested, June.

\$1.00; six, \$5.50; twelve, \$10.00; tested, \$2.00; breeders, \$5.00; fine imported queens, \$6,50. Circurlar free.

THE STATE AGRICULTURAL COLLEGE.

Dept. Zeology Entomology and Physiology.

C. P. GILLETTE, M. S. PROFESSO . ELMER D. BALL, M. S ASSISTANTS. E S. G. TITUS, B S.

FT. COLLINS, Colo., Nov. 9, 'oo.

Mr. A. D. D. WOOD, Lansing, Mich.

Dear Mr. WOOD.—Your letter and the bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they run very uniformly as follows:

Whole reach of "tongue." from base of submentum to tip of ligula, 26-100 of n inch; ligula alone to the dark mentum, 17-100 of an inch.

There were nine specimens and all their

There were nine specimens and all their tongues were measured.

Very truly, C. P. GILLETTE.

A. D. D. WOOD, Lansing, Mich.

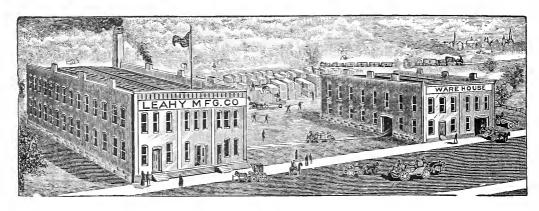
I am advertising for B. F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saving what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bze-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Higginsville, Mo.. East St. Louis, Ills Omaha, Nebraska.

DADANT'S

Foundation

By the new **Weed Process** is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1901 is Ready. Send for a Copy; it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world.

G. B. LEWIS CO., Watertown, Wis., U.S A.

Branches:— G. B. Lewis Co., 19 So. Alabama St., Indianapolis, Ind.

Agencies:— L. C. Woodman, Grand Rapids, Mich. Fred Foulger & Sons, Ogden, Utah. E. T. Abbott, St. Joseph, Mo. Colorado Honey Producers' Assn.,

Denver, Colorado.

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

Marshfield Mfg. Co., Marshfield: Wis:

Queens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I amable to secure the mating of my queens with drones from the most desirable colonies. Special attention is given to the selection of both queen-and-drone mothers from colonies that show marked industry, and cap their Safe arrival guaranteed, and every queen warranted to produce light yellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, she will be replaced, or money refunded. shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

JAS. F. WOOD, No. Dana, Mass.

S200, Red Clover queen.

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OFFER NO. 35

ON SEPTEMBER 1st last we announced that we finally had a redclover queen fully equal to the one we had years ago. The colony of this queen has given one of the most remarkable showings on red clover of any bees we have ever had. The queen in question is an imported one, and therefore of the genuine pure leather-colored Italian stock. We sent out daughters from her all the season. But we did not discover her value until the clover season, second growth, came on, and then her colony so out-distanced all the other 450 that she attracted attention at once.

It must be understood that these queens are not golden yellow, neither are their bees of the five-banded stock. They are simply leather-colored Italians, whose mother came direct from Italy.

Since the notice appeared regarding this queen we have hardly been able to supply all of the queens that were wanted from this stock. Many daughters of this queen we sent out before we knew her value, and it now transpires that some of the finest bees in the land are from queens we sent out early. We are now booking orders for the coming season, and make the following offer, but no queens will be furnished except those who subscribe for Gleanings, and only one with each year's subscription. All arrearages must be paid to the end of this year. Gleanings for 1991 and one untested red-clover queen, \$2.00; Gleanings one year and a tested red-clover queen, \$4.00; a select tested red-clover queen and Gleanings one year for \$6.00. We will begin mailing these queens in June, 1901. Orders are already being entered, and the same will be filled in rotation. Do not neglect to improve this opportunity and get some choice stock, and send your order early so you may get the queen correspondingly early in the season.

A. I. ROOT CO., Medina, O.



ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times. 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the REVIEW with-American Bee Journal.... (new) (1.00) 1.75 The Southland Queen(1.00).... 1.75 Ohio Farmer...... (1.00).... 1.75 Farm Journal (Phila.).....(.50)..... 1.10 Rural New Yorker..... (1.00)..... 1.85 Michigan Farmer...... (1.00)..... 1.65 Prairie Farmer. ... (100).... 1.75 American Agriculturist...... (1.00)..... 1.75 Harper's Magazine..... (4.00). ... 4.10 Harper's Weekly...... (400)..... 4.20 Youths' Companion (new)(1.75) 2.35 Cosmopolitan..... (1,00)..... 1.90 Success, (1.00). ... 1 75

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee - Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well fled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent.; except that a few dealers charge only five per cent. when a shipment sells for as much as one hundred dollars.

CHICAGO—During hot weather there is very little demand for honey, and nothing coming forward. Practically no quotations until next issue.

S. T. FISH & CO.,

June 24.

189 So. Water St., Chicago, Ills

BUFFALO—No demand now for honey; and we don't advise shipments until October. We quote as follows: Fancy white, (old) 14 to 15; No. 1 white, 12; fancy amber, 8 to 9; No. 1 amber, 7 to 8; fancy dark, 6 to 7; beeswax, 22 to 28.

BATTERSON & CO.

June 24,

92 Michigan St., Buffalo, N. Y.

CINCINNATI, OHIO.—The market for comb honey here is becoming a little bare, although higher prices are not obtainable. Fancy white comb sells for 16 cts.; lower grades do not want to sell at all. Extracted is selling slow; amber sells for 6½ and higher. Fancy white clover brings 8 and 8½. Beeswax 28.

C. H. W. WEBER,

Jan. 14. 2146 Central Ave., Cincinnati, Ohio.

KANSAS CITY—We beg to quote you our honey market as follows; practically no shipments arriving, and very little selling. We are getting \$3.50 to \$3.65 per case of 24 sections No. 1 white; amber \$3.00 to \$3.25. Beeswax scarce and wanted. Will give 25 for pure beeswax. Advise or write us.

W. R. CROMWELL FRUIT & CIDER CO., May. 5. 423 Walnut St., Kansas City, Mo.

NEW YORK—There is a fairly good demand for amber and white comb honey. Extracted, of all grades, is dull with a good supply. Beeswax firm and wanted. We quote as follows:—Fancy white, 15; No, 1 white, 13 to 14; fancy amber, 12; No. 1 amber, 11; white, extracted, 6 to 6½; amber, 5½ to 6½; dark, 5; beeswax 29.

HILDRETH & SEGELKEN,

265 & 267 Greenwich St., Cor. Murray St.

June 23.

New York.

NEW YORK—The market here is almost entirely bare of comb honey. There are a few lots of comb arriving from the South. There is no demand as yet for comb honey. Extracted is plentiful on this market with little or no demand at present. We quote as follows: Fancy white, 15; No. 1 white, 14; No. 2 white, 12; buckwheat, 10; buckwheat, extracted, 5½. Beeswax is firm and in good demand at 28.

FRANCIS H. LEGGET T& CO.

June 24. W. Broadway Franklin & Varick Sts.

CHICGAO—The new comb honey has not yet reached this market. It would sell at 15 to 16 if choice white, and the ambers at 12 to 13. The market is entirely bare with exception of a few cases of a lot that we had held for us, expecting that it would be needed. Advices are that shipments will be started by July 1st, very little trading is being done in extracted, as large dealers will not contract this sea on unless at low figures; some sales of amber have been made at 4½ & 5 for early.

R. A. BURNETT & Co.,

June 19. 163 So. Water St., Chicago, Ill.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that defy competition! Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of Sections—polished on both sides. Satisfaction guaranteed on a full line of Supplies. Send for catalogue and be your own judge. AUG. WEISS, Hortonville, Wisconsin.

Send us a list of what goods you want and get our special prices. We have a complete stock of supplies and can make prompt shipments. Catalogue free.

Page & Lyon,

Mf'g. Co.

New London, Wis.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and New Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy of The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

JAMESTOWN, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y



Pacific Queens

Of three - banded, Italian, honeygathering stock. Circular free.

Circular free,
W. A. H. GILSTRAP,
Grayson,
2-01-6t Calif.
Stanislaus Co.

- If you wish the best, low-priced -

TYPE - WRITER.

Write to the editor of the Review. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

-If you are going to-

BUY A BUZZ-SAW,

write to the editor of the Review. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.

2nd-Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville, Ohio, has accepted a permanent position in Arizona, and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

1 Coll wire
61 Section Cases (Wide Frame and tin sep-
arators) at
68 Covers at
53 Bottom Boards at
30 Escapes at
50 Feeders (Heddon Excelsior) at 25
30 Alley, Queen and Drone traps. at 35
All of the chara are in my peggaggion and can

All of the above are in my possession and can be shipped promptly. The hives and cases are well-made and nicely painted, and having been in use only two or three seasons are practically as good as new. Any one wishing to buy anything out of this lot can learn fuller particulars upon inquiry.

W Z. HUTCHINSON. Flint. Mich.

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Names of Bee-Keepers.

TYPE WRITTEN.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 46	Ку 182	N. C60	
Ark 130	Kans 350	New Mex 26	
Ala 80	La 38	Oregon 104	
Calif 378	Mo 500	Ohio 1,120	
Colo 228	Minn 334	Penn 912	
Canada 846	Mich1,770	R. 1 48	
Conn 162	Mass 275	S. C 40	
Dak 25	Md 94	Tenn 176	
Del 18	Maine, 200	Tex 270	
Fla 100	Miss 70	Utah 68	
Ga90	N. Y 1,322	Vt 160	
Ind 744	Neb 345	Va 182	
Ills 900	N J 130	W. Va 172	
Iowa 800	N. H 126	Wash 128	
		Wis 500	

W. Z. HUTCHINSON, Flint, Mich.

Take notice, we are headquarters for the

Albino Bees.

the best in the world. If you are looking for the bees that gather the most honey, and are the gentlest of all bees to handle, buy the Albino. I can furnish the Italian, but orders stand 50 to 1 in favor of the Albino. I manufacture and furnish supplies generally. Send for circular.

S. VALENTINE,

3-01-3t.

Hagerstown, Md.

Please mention the Review

D. COOLEY,

Dealer in **Bee-Keepers' Supplies,** 4-01-6t Kendall, Mich.

Root's Goods at Root's Prices. Catalog free.

Please mention the Review

HEDDON CASES.

I have over 100 of the Heddon, old-style section cases, that are well-made and painted, have been well cared for, and are practically as good as new that I offer at 15 cts. each.

W. Z. HUTCHINSON, Flint, Mi

■19111 **■**

B1800 **B**

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Bees Pay In Colorado

BHIND

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If you want to learn all about the marvelous Honey Rescources of the Alfalfa Regions you should subscribe for the

Rocky Mountain Bee Journal.

Monthly; 50 cents per year; sample copy free; 3 months on trial, 10 cents. Address The

Rocky Mountain

Bee Journal

Boulder, Colo.

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Hutto, Tex., April 10, 1900 T. F. Bingham,
Enclosed find \$1.75
Please send me one brass smoke engine. I have one already. It is the best smoker I ever used.

Wm Bamber,

aring Selim Santa Suling Selim Santa Santa Selim S

Mt. Pleasant, Mich., has his own saw-mill, and a factory fully equiped with the latest machinery, located right in a pine and basswood region, and can furnish hives, sections. frames, separators, shipping cases, etc., at the lowest possible prices. Making his own foundation enables him to sell very close. Send for samples and prices before buying, and see how you may save money. time and freight. Bee-keepers' supplies of all kinds kept in stock. 12-99-It

Dittmer's Foundation

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Retail-Wholesale-Jobbing.

I use a non-dipping process that produces every essential necessary to make it the best and most desirable in all respects. My process and automatic machines are my own inventions, and enable me to sell foundation and

Work wax into Foundation for Cash at prices that are the lowest. Catalog giving

Full Line of Supplies, with prices and samples, free on application. Beeswax wanted.

GUS DITTMER,
Augusta, Wisconsin.

Three Good Points

Good Stock, Low Prices, Prompt Service.

My stock is from J. P. Moore's longtongue strain, A. I. Root's famous \$200queen, and from the stock of J. F. Mc-Intyre that filled supers when other colonies were starving.

I sell warranted queens, in any quantity, at 50 cents each. If a queen proves impurely mated, another is sent free of

charge.

All queens go by return mail, unless otherwise ordered. I guarantee safe arrival and entire satisfaction, or return L. H. ROBEY, your money.

7-91-3t.

Worthington, W. Va.

Early Queens.

We have Italian stock the equal of any. We rear queens in full colonies by the best known methods. We can furnish queens early—right NOW if you want them. Tested queens, \$2.00; untested, \$1.00; six for \$5.00; twelve for \$9.00.

Discounts on large orders. 3-01-3t

CHRISTIAN & HALL, Meldrim, Ga.

National Bee-Keepers' Association.

Objects of the Association.

To promote and protect the interests of its

To prevent the adulteration of honey.

Annual Membership, \$1.00.

Send dues to Treasurer.

E. R. Root, MEDINA, O. President.

R. C. AIKIN, LOVELAND, COLO.
Vice President

Dr. A B. MASON, Toledo, O. Secretary.

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Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Pow-Saw in making er their hives, sections and boxes.

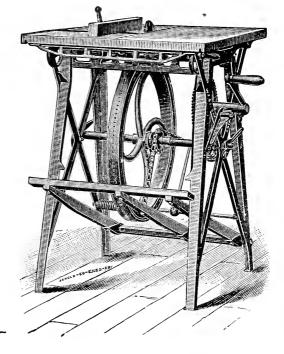
Machines on trial. Send for Catalogue.

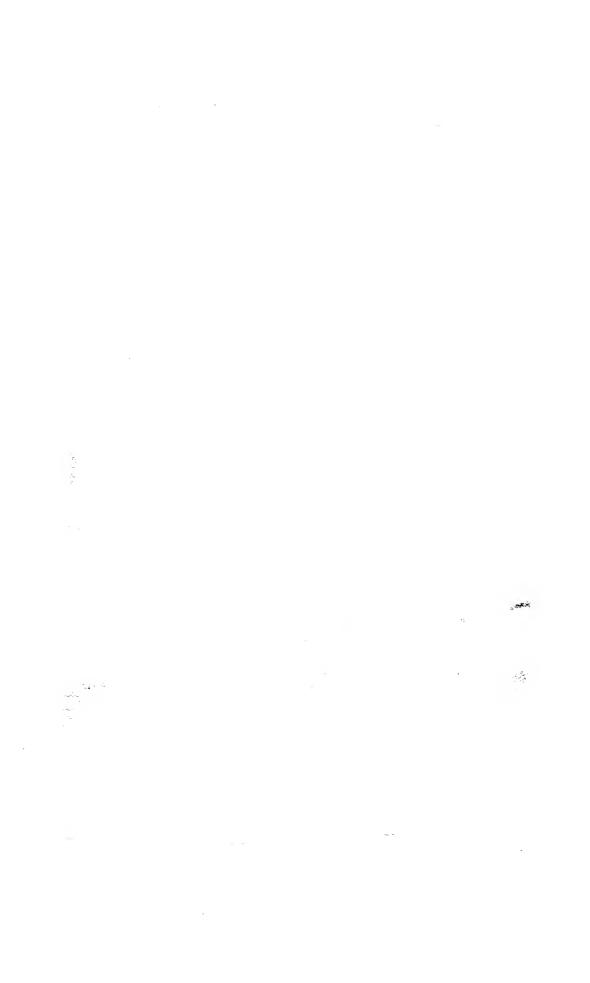
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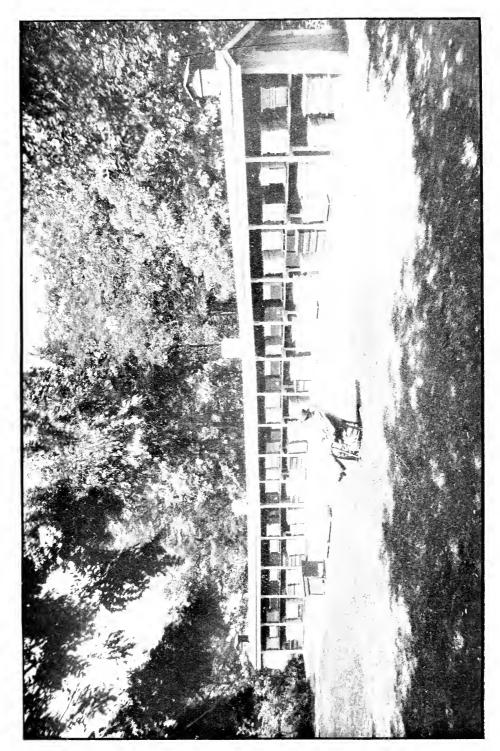
384 Ruby St.,

Rockford, Ills.

1.01.9t







BEE-SHED OF WM. STOLLEY, GRAND ISLAND, NEBRASKA.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers. \$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor.

VOL XIV,

FLINT, MICHIGAN, JULY 10, 1901.

NO. 7

OME OF THE ADVANTAGES
OF A WELL-ARRANGED
BEE-SHED. BY WM. STOLLEY.

With a well-arranged bee-shed everything used in the manipulation of the bees is close at hand and under shelter. The bee-keeper and the bees are always in the shade; and work can be continued even if a shower comes up. The use of a shed insures safer wintering, discourages swarming, and keeps all hives and fixtures in out of the weather. All of my hives are 18 or 20 years old, yet they are just as good as new.

The picture that I send you was taken recently, and shows my apiary up to date.

The lower tier shows 20 hives actually occupied with bees, with supers full of surplus stores nearly ready for the extractor.

In the upper tier I rear what queens I may need for my own use. Ten nuclei are ready now to be lowered to their proper places below. They have young laying queens and are strong enough in bees and brood to receive their first set of surplus combs.

* The shed is 90 feet long and 8 feet wide, strongly built and quite well pro-

tected from the winds by surrounding trees and bushes. The only fault I find with it is that it is too narrow. If I had it to do over again I should make it at least 10 feet wide—possibly 12 feet. As it is, there is scarcely room in the rear of the hives for comfortably working with the bees; and I often find it easier to work in front of the hives; even if it does interfere somewhat with the flying bees.

Fifteen shade-boards, six feet long and three feet wide, protect the hives in front, in winter, against wind and drifting snow. When these boards are laid down in winter to allow the bees to have a flight, it makes a fine place for them to alight. At such times I also sweep the snow from the roof, and this, together with the shade boards, is the means of saving many bees from perishing on the snow.

GRAND ISLAND, Neb., July 20, 1900.



EEDING BACK HONEY BY A
MOST NOVEL METHOD.
BY FRED H. FARGO.

Having for several years practiced the following described method to secure the completion of unfinished sections at the close of the honey gather-

ing season, it may be of benefit or interest to some who might like to experiment by trying the plan; as every apiarist has generally a good many sections that if completed would bring better prices to the producer and sell better in the markets.

The honey to be fed back, which may consist of unfinished sections or any combs of suitable honey from three to four pounds in quantity, is daily placed in a hive (the entrance to which must be contracted to admit only one or two bees at a time) a few rods from the apiary, and not a great distance from the colony upon which are placed the unfinished sections to be completed. A section of honey, bruised so that the honey is ready to run, and covered with bees, is then taken from the colony upon which are the unfinished sections, and placed in the hive containing the honey to be fed. Or we can place a section or piece of comb honey on the alighting board and leave it there until sufficient bees from this colony are taking the honey, then place in the hive as above stated.

These bees, thus carried from their home and placed in a hive containing honey, will work back and forth between this hive and their home, carrying the honey to the latter, and the strange part of it is that they will defend both hives from robbers.

In selecting the colony to do this work, choose one containing good workers that will protect their own home against the intruding robber bees. The fact that the work of carrying away the honey is commenced by bees that are *all from one colony* accounts for their combining in a defense of the spoil.

When a super is nearly completed, raise it up and place another of unfinished sections underneath.

I have had a single colony complete 125 to 150 sections in the above manner.

Several hives may be arranged in this way, each colony working back and forth between its respective hives.

BATAVIA, N. Y., Mar. 2, 1901.

EEDING BACK EXTRACTED
HONEY, SCIENTIFICALLY
CONSIDERED. BY ADRIAN
GETAZ.

Sometime ago, thinking of feeding back, I hunted up all the information I



could in our bee and bee papers books. At first I was astonished to see how far apart were the results obtained. Then, after a thorough investigation, found that the results could be reconciled by taking into consideration

the different conditions under which they were made. Besides that, these experiments give some valuable information regarding the amount of honey necessary for sustaining the life of a colony of bees. Let us first do some speculative figuring as a basis to start from, and then compare the figures thus obtained with the actual results.

When feeding back is commenced, the first thing the bees do, is to start a great deal of brood and fill up the brood nest with honey. Quite an amount of honey is thus spent before anything is stored in the sections.

It is evident that, in order to obtain the best results this amount (let us call it preliminary consumption) should be reduced to a minimum. The brood nest should be contracted, if necessary, and at any rate should be as full as possible, by exchanging combs with other colonies; or in any other available way. Generally the brood nest is full or nearly so at the close of the honey flow; therefore no time should be lost in beginning the feeding back.

It is also clear that the number of colonies should be the least possible; that is, each colony should be worked for the greatest amount, as the greater number

of colonies fed, the larger will be the total preliminary consumption, without any return to the apiarist (except the improvement in the condition of the colonies).

After the preliminary consumption stage is passed, and the bees begin to fill the sections, the only loss to meet is what may be called the daily consumption; that is, the amount necessary to sustain the life of the bees, produce the wax and feed the brood.

Let us estimate these amounts: A colony wintered in the cellar does not consume much more than 15 or 20 pounds of honey during a period of something like 120 days. That is only a small fraction of a pound every day. But in summer the colonies are much larger, and life more active, so the amount consumed simply to sustain the life of the bees, must be several times larger. We may put it, as the nearest guess attainable, at half a pound a day.

Another quantity of honey is eaten in order to produce wax. Here we are almost completely in the dark. amount of honey necessary to produce a pound of wax has been estimated all the way from 3 to 20 pounds. pounds, and large figures, are evidently If we take two a misunderstanding. colonies and furnish colony A with combs, and let colony B build its own combs, it is very possible that colony A may have 20 pounds of honey more than the other for each pound of wax produced. But it does not, by any means, follow that it takes 20 pounds of honey to produce one pound of wax. The fact is, that colony A would be gathering honey rapidly, while during that time colony B would be occupied in building comb, and could not gather any surplus, simply because it would have no room to store it. The experiments properly made have shown from 3 to 8 pounds of honey for one pound of wax. As the amount of wax necessary to complete a section of honey, or even a section of foundation is very small, we will guess at a daily consumption of another half pound of honey for wax production.

As to the consumption of honey for feeding brood, we may say that all the experiments mentioned below were made either with small hives, or on contracted brood nests, except those of A. I. Root. Assuming a daily production of 800 bees, there would be a weight of brood hatching every day of only 1-5 of a pound, counting 4,000 bees to the pound. much honey will it take to raise one pound of bees? Evidently it will take more than one pound of food to raise one pound of bees, for there are some losses. These losses are not very great, however. There is the carbon dioxide, and water vapor exhaled, and there is a very small quantity of excreta left after the bee is raised. The larvæ stage lasts only 5 days. But a part of the food is water and pollen. The Hon. R. L. Taylor estimates that it takes about 2 pounds of honey to produce one pound of bees. I rather think the estimate is somewhat too high, but for our purpose, we can adopt it, and guess another half pound of honey daily for raising brood.

So we come to an approximate daily consumption of one and one-half pounds of honey. Of course, in actual practice, there must be a considerable difference between different colonies, at different times of the year, and under different conditions.

The first conclusion to be derived is the necessity of fast feeding. If the colony fed receives or takes only three pounds a day, there will be a loss by daily consumption of one-half of the honey fed. In feeding 12 pounds a day, the loss would be only one-eighth of the honey fed.

Right here, the feeders employed have probably been more or less defective. In using a tiu pan, only a single line of bees can have access to the feed around the edge. Assuming the pan to be 8 by ten inches, and allowing 6 bees side by side to the inch, we find that only about 200 can have access to the feed at the same

time. The feeders generally used do not give very much better results.

I should think that for a colony of 20,000, or 25,000 bees, the feeder should furnish room for at least 1,000 bees working together.

Now for the practical results: The first met with is by Dr. Mason. He obtained more honey than he had fed. Didn't know why. The probability is that the brood-nests were full of honey when he began feeding back. Feeding always induces brood rearing; and to make room for the brood, his bees carried a portion of the honey "up stairs."

At the other end of the line, we find Doolittle who got one pound for every two pounds he fed, or even less. tunately, he gives us no details. A careful experiment from such an excellent observer, would be very valuable. If we suppose that each colony was fed 50 pounds, that the preliminary consumption was 10 pounds, that the amount fed daily was 4 pounds, and the daily consumption was 11/2 pounds during the 10 days necessary to feed 50 pounds, we will obtain 25 pounds for net returns; that is, half the amount fed. All these conditions and results are undoubtedly within possibilities.

A. I. Root, several years ago, made some experiments in that line. He gives, for preliminary consumption, 25 pounds. That seems enormous. But at that time he was using the ten-frame, Simplicity hives. It seems, also, that he did not contract the brood nest, or take any care towards having it pretty full before he began feeding. On the other hand, he places the daily consumption (after the 25 pounds are used) at one-tenth of the amount fed. It could hardly be possible to have fed more than ten pounds every day, and that would give a daily consumption of only one pound.

The only carefully conducted experiments we have are those by the Hon. R. L. Taylor. In his first series of experiments, he fed sugar instead of honey, and assumed that 4 pounds of sugar are equal

to 5 pounds of honey. Without entering into details, I will say that, assuming the increase of weight of the broad nest (there were weights before and after) to represent the preliminary consumption, and computing the amounts fed and taken off with the number of days, we find, for daily consumption, one pound a day for one colony; 11/2 for another, and 22/3 for the third. This last is an anomaly that cannot be explained. Mr. Taylor says he failed to notice any robbing. The average amount fed to each colony was about 3 pounds a day; entirely too little for profitable feeding back.

The second experiment was made with four colonies. The increase in honey in the brood-nest was ten pounds for the first colony 5 for the second and less than I pound for the two others. The daily consumption was, for the four colonies, respectively, 1 4-9 lb., 11/2 lb., 11/4 lb. and a little less than one lb. The amount of brood was about the same at the start as it was at the end of the experiment. amount fed averaged less than 3 pounds a day. At that rate feeding back is not profitable; as half of the honey fed, or about that, goes to supply the daily consumption.

In the American Bee Journal for 1890, page 678, is found an experiment by Mr. Demaree; 30 pounds of unfinished sections and 138 pounds of honey were given to a colony. 140 pounds of finished sections (that is, 160 sections weighing 14 ounces each) were taken off as the result. This gives a loss of 28 pounds for both preliminary and daily consumption. The number of days of feeding is not given, but the amount fed varied from 5 to 8 pounds daily, except the first two days, during which 25 pounds were taken. Assuming 7 pounds for an average, we would have 18 days, or a daily consumption of less than 11/2 pounds a day, since a part of the 28 lbs. is the preliminary consumption. A special feeder was used. The experiments were repeated the following year (American Bee Journal, 1891, page 332) with similar results.

The experts in feeding back, among whom is the editor of the Review, have obtained as much as 4 pounds of comb honey from the feeding of 5 pounds of extracted honey. The chief points, evidently, seem to be to have the brood-nest so full at the beginning that but little will be stored there; and to make the bees take as much food as possible. experiments mentioned above seem to show that a colony of bees consumes about 11/2 pounds of honey per day, and if we were to feed that amount only, it would be all consumed, while if we fed 15 pounds a day, only one-tenth of it (1 ½ lbs.) would be consumed, and the 13½ remaining pounds would be available as surplus.

That 11/2 pound a day for consumption is probably not quite enough. should be added what the bees may have gathered from the field. This however cannot be much. All the feeding back mentioned above was done after the honev flow. The majority of writers claim that heavily fed bees quit gathering in the field, or at least slack considerably. Some, however, deny it. The difference may be due to the amount of comb. all the comb has to be built, the fed honey may be stored in it as fast as it is built, and leaves no room for outside honey. If already built, and only partly filled sections are given, so there is plenty of empty comb, there may be room enough for both, honey fed and honey (nectar) gathered.

Let us now gather some instruction from the above facts. In the first place, it is evident that during the active season a colony of bees uses about 1½ pounds of honey for life sustenance, wax-making and brood-rearing. Supposing ten weeks of active work there would be about 100 pounds of honey. During the winter, a colony uses something like 20 pounds of honey. For the remainder of the year it takes at least ¼ of a pound daily for life-sustenance and what little brood may be reared. Total, somewhere about 170 pounds yearly. That seems excessive;

still, I do not see how it could be less; and in many cases it might be considerably more.

When we see a colony giving 100 pounds of surplus, while another may give only 30 pounds, we think that there is an enormous difference between the two, yet it is not so great as it seems at first. Granting the 170 pounds consumption to be correct, the total amounts gathered would be 270 and 200 pounds respectively; a difference of only about one-fourth. This should be an encouragement for breeding a superior strain of bees, as it would not take so very great improvement in the gathering qualities of the bees to make quite a difference in the surplus obtained.

The special experiments referred to in the beginning of the articles, concerning the amount of honey necessary to produce a pound of wax, were made with bees kept in confinement and fed. It is very doubtful if the results thus obtained can be applied to bees working under natural conditions.

Mr. Pender reasons thus: A good swarm of bees carry about a pound of honey in their sacs. During the first 24 hours they gather hardly anything. During that time they build from one to three pieces of comb weighing about 4 ounces. Thus he thinks that it takes about 4 pounds of honey to produce one of wax.

During the feeding back referred to above, Mr. Demaree made an experiment with one colony to ascertain the actual loss of honey. As soon as the colony selected had begun to work above, the super was removed and replaced by another filled with sections full of foundation. He had to feed 41 pounds of honey to get the sections completed. There were 32 sections containing 24 pounds of honey (net weight). A second super with sections having only starters was given. It took only 30 pounds of honey to fill it. A third super was then given with exactly the same results.

Of the 41 pounds used in the first trial, t is very likely that some went into the brood nest. We would have then 30 pounds of fed honey necessary to produce 24 pounds in sections. The loss would be 6 pounds.

A section of honey contains about an ounce of wax. The 32 sections would contain about 2 pounds of wax. Admiting (which is improbable) that there was enough nectar coming from the field to feed the brood and support the life of the bees, the 6 pounds of honey lost were employed to produce 2 pounds of wax. This would give 3 pounds of honey to one of wax as a maximum; for it is hardly propable that all of it was used for wax making and none at all for brood rearing. Perhaps the estimation of one ounce of wax per section, is too high. No description of the sections used is given.

Full experiments on the quantity of honey necessary to make wax, sustain the life of bees, and raise brood, are very much needed. There is work for the experimental station.

KNOXVILLE, Tenn., Mar. 13, 1901.



EQUISITES FOR SUCCESS IN THE PRODUCTION OF EXTRACTED HONEY. BY W. O. VICTOR.

In the order of their importance, I will name and discuss the requisites for the



greatest success in the production of extracted honey.

Ist, experience of the apiarist; 2nd, location; 3rd, stock of bees; 4th, fixtures; 5th, manipulation.

Experience of the apiarist is

of the most importance, because, without experience, he could not select the location, bees, or fixtures; nor could he properly manipulate them. This experience is often times dearly bought; as in my case (see Review, page 74, 1900). We can very much enlighten ourselves, by reading the various book and journals, but, before risking much money on bees (or any business) we should have experience in that line. The cheapest way to get this, is to engage with some practical apiarist for a season, and receive his instructions for your service, if he can spare sufficient time to instruct you in detail.

In selecting a location, great care should be used; and, as much as possible, acquaint yourself with the various sources from which honey is expected. the early spring we need pollen and nectar in sufficient quantity to bring our bees up to the highest possible point by the time our honey flow proper begins to come in. If we should have a heavy and protracted flow, we should then have a light flow to follow, to bring our bees back in condition for the next heavy work. We should expect at least several flows during the season; as, for extracted honey, several moderate flows are better than only one heavy one. in the former case, we have several chances of securing a crop. Once located, we should stick to our bush and study the flora; as the knowledge of it is wonderfully helpful in deciding upon the proper manipulations.

Especial care should be given to the selection of the bees we are to use. ought to have said, "queens," for, as Doolittle says, "the queen is the hub of the hive;" and, without good queens, of a good kind, we are wasting a part of everything we have invested. Too much care can not be bestowed on the selection of the queens that are to head our colonies; for on them depend very largely our success. First, the working qualities should be considered. If we have a strain that gathers five or ten per cent., or, in some cases, fifty per cent., more than other strains, we are just that much

ahead in *net profit*; as the food, hives, attention, etc., required by the poor stock, are exactly the same as that required by the superior. Then, again, we can increase our net profits by having better queens of this better kind, in proportion, as they are more prolific; and in many cases we can, by watching this point, of superiority of queens, increase our net profit from 200 to 300 per cent. over stock, that to all appearance, is fairly good. I am glad to note that superior quality and not superior appearance, is attracting most attention of late years. Do not understand me to say I do not like good looking bees, for such is not the case. If we can combine beauty and business, without making a sacrifice of business, I shall be more than pleased. We should not forget to require our bees to be kind and gentle in disposition. This quality, however, is usually combined with that of good business.

We should also have the best, and most approved fixtures; for life is too short to waste it over illy-made and antiquated equipments. My favorite hive is the tenframe Dovetailed, with plain, thick topbars. My preference for the Dovetailed hive is because it is simple and plain; and for the thick top-bars because I use only nine frames in my extracting stories, and spacers are of no service to me; and are very much in the way of rapid work in uncapping. I use the Cowan, reversible honey extractor, two or three frames. The latter is best where you have heavy extracting and wish to do heavy work. While I do not use or advise the use of queen excluders at all times, I consider them of sufficient importance to have them on hand to be used if we desire to do so.

Having complied with the foregoing, I will invite you to come with me into the apiary this beautiful spring morning. In seven or eight weeks we will have our best honey flow, and I must begin to day to get ready for it. The first thing, I will put out some feed; and I will get you to take two of these feeders out for

Four will be enough for this apiary (100 colonies). I will put them about forty steps out here to the south; as the breeze will take the odor of the feed through the apiary, and the bees will find it sooner. You see, to make these feeders, I nail a hive top to the bottom edge of a body, and wax the joints to keep them from leaking. The floats are made of old covers, bored full of holes, and cut down to fit in the bodies loosely. I put wire gauze on the float the bees would crowd one another down through the holes, and drown, but now I have no such trouble. I will bring some warm water and mix the feed. To this bucket of water (2 gals.) I will put about three quarts of honey. If I should make the feed too sweet the bees would go wild over it. After they get used to it, equal parts of each will do. I will put a bucket full in each feeder. Now, while the bees get to work on this, I will show you the arrangement of the apiary, which is with a view to affording the greatest comfort to the bees, as well as to myself.

I would like a little more shade than I have, but I will use shade boards later on these hives that are not protected by the trees. I face the hives southeast, because I want the morning sun and southern breeze to get a good chance at the en-This facing also protects the trances. entrances against northers. I used a level in placing these hive-stands, and have them just 3/8 of an inch lower in front, and exactly level from side to side. By placing the hives in pairs, this way, I can use one hive for a seat while I work the other; or, for a stand to place my tools on.

Well, just listen to that hum! Did you ever hear bees flying nicer? Like clever fellows, they are going after that feed. I will get the smoker and veils now, and we will see how things look on the inside of the hives. Needu't be afraid of robbing as long as that feed lasts. How do you like the looks of these combs? They were built on full sheets of foundation, and are as straight

as can be. I have one more hive I want to show you. I will leave the smoker here and take off my veil. I am not the least bit afraid of being stung by these bees. The queen is the daughter of an imported queen, and a perfect beauty. I want you to be sure and see her. There she is? See that row of dots down her back! Note her size, and general appearance. Her bees are not nearly as bright as some I have shown you, but, I want to call your attention to their size and uniform marking. Put your hand on them, and see how soft and warm they feel. Don't be afraid of them. They will not sting you unless you mash too hard. You see, not a bee has left the comb; and they do not seem at all alarmed. I wish you could be here during a honey flow, to see how they roll it in.

Now you see, there has not been a robber about, although we have had some dozen or more lives open, and more or less honey exposed all the while.

Pardon this digression; we will now proceed to prepare for the expected honey flow. We should put out some feed every day for four to six days; which will start brood rearing with a rush, and give us an opportunity to examine carefully, and see that each colony has plenty of stores. On the last day we feed we should examine each colony to see if there is any brood. If we do not find any, we should then examine carefully for the queen. If we should find any that are queenless, they should be doubled in with colonies that have a queen, or given a queen as early as possible. Having thus started brood rearing, it will continue as fast as the bees can care for it, until the first started begins to hatch,

We now have about two weeks to look after our supplies, and get everything in readiness for the rush of the season, as the bees should not be disturbed until the brood we have caused them to start begins to hatch. This brings us up to within 30 to 35 days days of our honey flow.

Upon our efforts at this time depends largely our success. Should we sleep too early or too late, we may see flowers bloom, wither and perish for the want of bees to give them life. We should see that the bees have all the food that they can possibly use, and not allow them, for a moment, to think they are running short. If they are not gathering some honey they should be fed as described above; both to encourage brood rearing, and to facilitate manipulations. should have ample room, even if we have to exchange empty combs, for combs of honey, extract the honey and feed it back, and in this way keep them stimulated to the highest possible pitch of brood rearing. When the colony is strong enough, spread the brood and put in frames partly full of uncapped honey, and give the queen every possible encouragement to lay. Each colony should be examined at least once a week, and, as nearly as possible, keep the sealed brood shifted to the center of the colony; as the cells vacated by the hatching bees will be filled sooner when in the center of the brood nest. This work should be constantly pushed for three which brings us to within ten to fifteen days of our honey flow. We are now pleased to see that our queens have reached the height of their laying capacity, that we have eight to fifteen solid frames of brood, have seen but few swarms and very little disposition to swarm. We now see to it that there is ample room for the wonderful amount of bees that people our hives, and for the extracted honey flow. Raise the front of the hive from the bottom board an inch to give free entrance and ventilation —and we are ready to balance our scales and reap the reward of our labors.

I have the pleasure of showing you the second highest record for three days, that I have ever heard of; which is forty-four lbs., as you will see by my record of the 18th, 19th, and 20th. At the top of the middle story you will see that my scales were balanced on April 13, 1896,

and weighed 87½ lbs. Follow the record to the 23rd, and you will see the weight is 166 lbs; a gain of 78½ lbs. for ten days. On the top story is a record taken at different hours during the day of the 19th, which shows the hive at 8 A. M. to be 7 lbs. short of the previous day's record; as that 7 lbs. of bees are at

last, but by no means least, look at the last line on the top story, and see my estimated gain for that day from 500 colonies, is 5.600 lbs! Have I reaped a reward for my labor in fussing with the bees so much for the past two months? I think I have.

WHARTON, Texas, Mar. 7, 1901.



work at this hour. At 2 P. M. we are still 5½ lbs. light, although they have been at work for more than six hours. This shows that the working force of this hive, in the field at this time, is enormous. My estimate is that there must have been something like 12 to 15 lbs. at work at this hour, as, at 7 o'clock, only five hours later, we had 15½ lbs. gain over the previous day's record. And

HE PREVENTION OF SWARMING IN JAMAICA.
BY H. E. VAUGHAN.

I notice in the January number of the Review that you advocate the keeping of numerous colonies in several out-apiaries, and the management of the same on economical and "short cut" lines; and you invite suggestions and queries as to the best manner of doing this. I live in the sunny island of Jamaica, where it is always summer, and, so far, I find the most difficult problem to tackle here is the swarming question. I work for extracted honey, as do nearly all the Jamaica bee-keepers, there being at present no market for comb, and all the authorities tell us that, when working for extracted honey, swarming can be practically controlled at the bee-keeper's will. I have no doubt that this is true for Northern climates, where each year the bees are reduced during the wintering process, and when the honey flow, though short, is, while it lasts, much heavier than ours. Here we have more or less flow for at least ten months of the year; and from October or November to, say June, a fairly continuous, light flow; sufficient to promote breeding to its utmost and yet not enough to occupy the bees busily all the time in storing (wish it was!) There are also two to three weeks' heavy flow from which we get our main crop, and this generally occurs about January, after the bees have had enough flow to fill their brood nests to overflowing with honey and bees, and get the swarming fever, then they will not be content without splitting themselves up; thus losing honey and increasing the number of hives, supers, etc., needed, besides adding to the amount of labor required.

I have tried 16-frame hives; I have tried ample ventilation with great big entrances; shade boards; supers (up to three on one hive) without success. The only thing that works is to cut out queen cells and return the swarms; at the same time removing some frames of brood; but here we come to the rub. All this means labor, skilled labor, and would necessitate the keeping of a man continually in attendance at each apiary for nearly the whole year; besides, I think bees compelled to stay at home where 'hey want to swarm do not work se they usually "sulk" with me for a day or two after being returned.

Now, Mr. Editor, if you, or any of our Sonthern friends, could give a method of preventing the swarming fever from arising, under the conditions I have tried to sketch above, you would confer a favor on me; and, I think, on all young beekeepers who are located in and around the tropics.

I should have mentioned above that my bees are chiefly Italians with a few Italian-black hybrids.

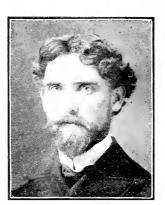
GRANGE HILL, Jamaica, Mar. 21, 1901.



ITH LONG TONGUES

IS NEEDED A WILLINGNESS TO USE THEM.
BY F. B. SIMPSON.

No, Mr. Editor, your note on page 185 shows that you have not grasped my



meaning. Mvcontention is that a long tongue will not of itself give a bee any advantage, even on red clover, unless such increased length is due to increased vigor or energy.

far as I know, no one has yet demonstrated the minimum length of tongue which can be used to obtain any nectar from red clover; I therefore believe that in any good colony there will be at least a few bees having a sufficient tongue-length to get some nectar from red clover; and if they work it and reach all they can it will undoubtedly increase their tongue-length to some extent; and if this continues progressively for several generations, we will naturally get long tongnes, together with the ability and willingness use them. On the other hand, if we arrest from a gueen giving bees of 22

oreed from a queen giving bees of .23 tongue length, and get queens giving

bees of only .21 tongue length, we have a degeneration of .02 instead of progression; and I contend that some of such bees may have such a tongue-length which gives no indication of their ability or willingness to use it.

I claim that a long-tongued bee that can but will not reach, and a short-tongued bee that simply cannot, are equal if other qualifications are equal. Except that as a breeder, the mother of the shorter tongued one will have the advantage if she was bred without any idea of long tongues, and if the other was bred for long tongues and failed to produe the willingness and ability to use them. I claim that it is possible to find extra long tongued bees that won't reach; and that, other things being equal, they are inferior to moderately long tongued ones that will reach as far as they an.

If one will experiment with glossometers such as I have been trying, consisting of glass tubes with an internal diameter of one-twentieth of an inch, he will get an approximation to a red clover corrolla tube; and he will note that while many bees can reach very deep into such a tube, most of them hate to except when extremely hungry. He will note that it is seldom that a bee will use its tongue in a straight line, but nearly always with some degree of curvature, and that the tongue is continually thrust in and out instead of being held at the same length of extension; probably indicating that elasticity may play an important part and may not be in direct proportion to absolute dead tongue-length. I believe the Root method of measuring is inaccurate, yet the only practical method of comparison where the bees have to be sent to a distance. Another point which I consider of considerable importance is that with a glossometer as mentioned one will note that when the bee has reached as far as possible, she takes the nectar from the side of the tube, and the meniscus (crescent shape of sur face of liquid in small tube) is of sumcient depth so that the nectar in the center of the tube is often over a hundredth of an inch lower than at the edges. I can see no possibility of red clover failing to give an equal meniscus, and, if it does, the apparently paradoxical condition follows, that a bee can obtain, from red clover, nectar to an average depth nearly if not quite one one-hundredth of an inch further than she can reach.

I wish here to correct the error I made in my article on inbreeding in the June Review. When I wrote "my idea that the best bee is the best regardless of locality" I had in mind all the limitations mentioned in the middle paragraph on page 173 but failed to put them on paper as they should have been if again mentioned, for I am far from believing the way that last sentence was printed.

CUBA, N. Y., June 24, 1901.



UNPAINTED HIVES are recommended by Mr. Perry Ellis of Oregon. He says that his experience with them is the same as that of Mr. Doolittle.

YKKK WIMININ

IN MOVING BEES, stop any cracks or broken places with *mud*. So writes S. W. Hall of Wyoming. He says that it beats rags or wax, as it is quicker and just as effectual.

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BOTTOM STARTERS have been discarded by S. W. Hall of Wyoming. He says that they wilt down. I have never tried them (see no use for them) but I presume that he used them too tall.

ONTARIO will make an apiarian exhibit at the Pan Armirican Exhibition. It will "obable be a "p about the middle of July. The government has appropriated \$500 towards defraying the expense.

R. WILKIN, one of the pioneer beekeepers of California, and the father-inlaw of J. F. McIntyre, died May 30, 1501. At one time he was probably the leading bee-keeper of Southern California.

MANAGEMAN PAR

MR. F. B. SIMPSON will next month contribute an article describing a scientific method of queen-breeding, and of testing queens in a decidedly novel, yet wholesale and practical method.

SMOKE, says editor Hill of the American Bee-Keeper, is a necessary commodity in the apiary, but there are times when its use should be strictly avoided. In the case of robbing, a spray of water is equally effective, while a blast from the smoker may result in the loss of a colony.

YAYAYAYAYA

EGGS, those laid by a queen bee, have been sent by mail, and hatched successfully. Gleanings reports success when the distance was not more than 100 miles—beyond that there was no success. Last spring when I called on Mr. A. D. D. Wood, of Lansing, he told me that he had had excellent success in getting eggs by mail from Mr. Doolittle. I don't know how far the distance is, but it certainly must be four or five hundred miles, if not more.

WANTER NAME

"CHUNK HONEY" is something that is never seen in the Northern markets, but it is evident that it finds a ready sale in the South and West. Mr. S. W. Hall of Wyoming writes the Review that he sells all of his half-filled and broken or leaky sections as "chunk honey." He puts all that he can into a five pound pail, and then pours in enough extracted honey to bring the price to a certain figure, say, 75 cts., and sells the whole at the price of comb honey. He never has enough to supply the demand. The only drawback is the candying.

BEE PARALYSIS is certainly not so prevalent in the North as in the South. Editor Hill, of the American Bee-Keeper, says he does not remember of having ever seen a case of it in the North, while he usually sees more or less of it in the South each season.

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SWARMING before the harvest is the way E. R. Root reports that the bees do in the South and West. When the main harvest comes they kill off their drones, stop swarming, and get down to business. Here in the North our bees are much less inclined to swarm after the beginning of a good honey flow, than when the flow is light.

"BOIL IT DOWN," is what Mr. S. W. Hall of Wyoming would be pleased to have us editors and correspondents do. He says that he takes the bee-journals to get new ideas, but he is obliged to scratch over so much chaff for a few grains of common sense that he is sometimes tempted to forego the reading of all of the journals, until they learn to boil it down. Long articles are sometimes necessary and valuable; but, if I understand the spirit of Mr. Hall's criticism, it is not to these that he objects so much as to giving space to articles that are of little or no help to real, practical honey producers.

CELLULOID BASE FOR FOUNDATION.

Mr. Brown of New Zealand wishes to know why we could not have the base to our brood foundation made of celluloid or vulcanite rubber, and thus avoid trouble from the sagging of the foundation. I believe that different substances have been tried as a base; linen, and wood, and I don't know what all; but I know that, sooner or later, they have been discarded. The expense of making such foundation would be one great objection to it. The sagging that it is intended to overcome is more easily and cheaply prevented by the use of wires.

FLOODS swept away 75 colonies of bees for Mr. J. H. Kershaw, of Abilene, Texas. He is an old man, broken in health, and depending upon his bees for a living. He has half a dozen colonies left that were in a different location. If any of the brethren have a queen or two that they can send him it will be appreciated, as it will help him in increasing the remaining few colonies.

MAKER STATES

THE INFLUENCE OF LOCALITY—BEE-KEEPING EDITORS OUGHT TO TRAVEL.

E. R. Root of Gleanings has been taking an extended western trip, going south through Texas and coming back through Colorado. He says that this trip, in many ways, has been a revelation and a surprise. More than ever is he impressed with the influence of locality. A good bee-keeper from the North, until he can unlearn some things and learn new ones, is sure to meet with failure upon going into these Western regions.

The trip that I took last winter through New York was one of the best things that I ever did for the Review. Not only are things different in a distant locality, but a stranger looks at them in a different light than does a home body. This side-light, so to speak, brings into view features before unnoticed.

"BUMBLE BEE HONEY," AND LONG-TONGUED BEES.

I have often been inclined to smile when I have heard people talking of "bumble bee honey;" as though it were different from other honey. I would admit to myself it did seem as though it had a different taste than other honey, but I was always inclined to attribute that to my keen boyish appetite that was always present during the period of my life when I robbed bumble bees' nests. Yesterday, an old bee-keeping friend called upon me, and, as we sat out on the

porch talking over the various phases of bee-keeping, he said: "I believe that there is something in this long-tongue I'll tell you why. During the forty years that I have kept bees I have often noticed that there would occasionally be a colony or two that would store a lot of honey in the fall, when the other colonies were doing nothing, and this honey always tasted like bumble bees' honey. You know that bumble bees get most of their honey from red clover, and it is that that gives it that peculiar flavor. I am satisfied now that the reason that those colonies stored more honey was because their bees had longer tongues, and worked on red clover."

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HIVE COVERS are being discussed quite a little. Tin and canvas, and even a heavy paper, have been used to cover the wood. To my mind there is nothing better than paint for covering the wood of a cover. I know that these coverings are put on to prevent leaking, but a plain, sound board will not let the water through, while a cleat at each end will effectually prevent warping. that, occasionally, there will be found a cover of this kind that has twisted, but the twist can be taken out by supporting the cover at diagonally opposite corners, and putting a weight upon the other two corners. It has been suggested that a cover be made double so as to answer the purpose of a shade board. would be an added expense; besides, a shade board, to be of much use, ought to project out quite a distance beyond the sides of the hive. A shade board is needed only during the hottest part of the season, and it would not be good policy to be hampered with a large, double cover during the whole year. For the Northern part of the United States there is nothing better than a plain board of white pine, throughly cleated and painted; and it is hard to believe that such a cover is not the best cover in any climate.

PUTTING A HIGH . QUEENS.

Of late there been some pretty steep figures put upon the value of queens. I don't know what is the highest price at which a queen has been sold. There may be queens the owners of which would not sell them for \$100 or \$200, but queens have never been sold at prices even approaching such figures. Has any one ever paid more than \$10.00 for a queen? If a man has paid \$25.00, or \$100.00, or any other big price, for a queen bee, or a puppy, or a rooster, or a Jersey bull, I think it entirely legitimate to so state in his advertisements. I suppose it is equally legitimate to advertise that he has a queen, or rooster, or what not, that he values at \$200.00, but don't you see that it opens the door for every Tom, Dick and Harry to put a price on their stock; and, as talk is cheap, they may as well put on a little larger price than Mr. Big Gun has put upon his. The result is that the whole thing is run into the ground, becomes a farce, and finally reaches that stage where it belittles the man (and his goods) who employs it. I am the more free to write in this manner, as I was one of the first follows to head his advertisement with "\$100-Queen."

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LABLES FOR HONEY PACKAGES.

A great deal of attention is wisely bestowed upon the labels placed upon every package containing food-products. These labels are of bright, attractive colors, and tell in a few words what is most desirable that the purchaser should know. I have often felt that honey producers did not pay sufficient attention to this part of their business, and the matter is again brought tomy mind by a letter from a Mr. W. C. Brown, of New Zealand. Brown suggests that some of the bee journals have a symposium on the subject. As a starter, Mr. Brown puts the following questions: "What kind of labels are best suited to set off our packages—to advertise their contents? Should a label give an epitomized account of the honey

industry, explaining its magnitude as conducte on modern lines? Should half-tone cuts be used showing the producer's apiary? Should the label be printed in colors, and, if so, what colors are the most harmonious for this work? What size should the label be, as compared with the size of the package?" The Review will certainly be glad to publish suggestions upon any of these points.

HOW THE GERMS OF FOUL BROOD ARE,
AND ARE NOT, TRANSMITTED.

Some of us have been inclined to doubt the wisdom of Mr. McEvoy's advice not to boil or disinfect the hives when treating foul brood. Mr. J. D. Bixby of Grooms, N. Y. reports to me an extreme case that helps Mr. McEvoy's side of the story. A man had three colonies perish of foul brood early in the season in an out-apiary. The hives were stacked up against the side of the honey house where: the robbers and moths soon made short work of the combs, the latter falling out of the rear half of each frame in one hive, thus leaving a vacant space. Later in the season the owner noticed bees going out and in the hive, and, upon examination, he found a swarm occupying the vacant space formed by the combs falling down. They built new combs, filled them with buckwheat honey, and have remained in a healthy condition.

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TRYING TO SECURE TRADE BY USING PART OF A GOOD FIRM'S NAME.

About the first of May, Hildreth & Segelken, who furnish the Review with honey quotations for New York city, moved to 265 and 267 Greenwich St. Shortly after their removal from their old location (120 and 122 W. Broadway) one Joseph McCaul rented the old location, and hung out a sign "Hildreth, McCaul Co., Jos. M. McCaul Prop." He also has other large signs to the effect that his business is "Headquarters for Honey, Beeswax, Maple Sugar and Maple Syrup." He is also sending out circulars to the

trade. McCaul claims to have paid one Henry P. Hildreth, who has no connection with Hildreth & Segelken, a consideration for the use of his name. Hildreth & Segelken have applied for an injunction restraining the said McCaul from using the name "Hildreth" in connection with his business. Hildreth & Segelken's firm-name remains the same as before, and all business is carried on at their new quarters, 265 and 267 Greenwich St.

H. G. QUIRIN, of Parkertown, Ohio, sent a change of adv. for this issue of the Review, but it did not get here until the advertising pages were printed. As it contains some changes in prices, I will give the prices here: One selected queen, 75 cts.; six for \$4.00; twelve for \$7.00; One tested queen, \$1.00; six for \$5.00; twelve for \$9. One selected tested, \$1.50; six for \$8.00. One extra selected, tested, the best that money can buy, \$3.00. Purchasers will be guided by these prices instead of those in his ad. on page 222.

NAME AND PARTIES.

Drone Comb is seldon built by a newiy hived swarm for the purpose of rearing drones. As a rule, such comb is used for store-comb the first season. I mention this as I see an editorial in the American Bee Journal in which one objection urged against the use of starters in the brood nest is that drone comb is built, and, "as fast as it is built it will be more or less filled with drone brood generally more—and that brood is a waste." If frames furnished with starters are placed in the brood nest of a colony just before it is ready to swarm, these frames will almost surely be filled with drone comb, and the cells filled with drone brood; but when a swarm is hived upon starters, no drone comb will be built so long as the queen keeps pace with the comb builders; but let the queen get behind, or go back to fill the cells from which the bees are hatching in the center of the brood-nest, and comb is then built to store it is quite likely to be store or drone is but it is very seldom that it will be nied with drone brood at the time that it is built. By sorting over the combs in the fall the drone comb can be taken out and used after that in the supers, or melted into wax. Contrary to the belief of some, I believe that, under such conditions, combs are built at a profit even if they are to be melted into wax.

AN AMUSING INCIDENT, illustrative of the amount of ignorance that one may possess regarding bees, was related to me this morning by a lady customer. A young man who had recently married her niece was visiting at this lady's home when a swarm of bees came out. This young man went out to watch the proceeding, when he soon shouted: "Bring a cage, Auntie, I've got the queen, I've got her!" and came running forward with his handkerchief wadded up in his hands. Fearing for the safety of her queen, the lady was quite outspoken regarding the apparently careless manner in which she was being treated. much solicitude, the handkerchief was taken to a place of safety, and carefully unrolled, when out hopped—a little tree toad.

INTRODUCING QUEENS.

Arthur C. Miller has an article on queen introduction, in the May issue of the American Bee-Keeper. It is written in approval of the Simmins, fasting meth-That is, the queen is confined alone, without food, for half an hour before she is released, the releasing being done at evening. I once introduced 10 queens by following that plan, and succeeded with all of them. The editor asks "why at night?" I might say that, for one thing, there is no danger of the queen flying away when released after dark. The theory of the fasting method is that the queen is hungry and humble, and not inclined to run, but rather to linger and graciously receive the proffered food. Never mind, Bro. Miller, about the theory, what we want is a certain, sure method that is quick and practical. want one that will allow us to introduce the queen without keeping her caged two or, three days, and one that is as safe as are the methods of mailing queens; so that we can guarantee safe arrival and safe introduction. For three years now I have been guaranteeing safe introduction, replacing all queens that are not safely introduced, and while I have not had to replace very many queens, I did not strike a "dead-sure" method until I tried tobacco smoke. For two months last fall, and so far this summer, I have been instructing my customers to employ that method, and, so far, not a queen has If this goes on to the end of the season, and several hundred queens are introduced all over the country, in different localities, under different conditions, and managed by different beekeepers, and no queens are lost, I shall be ready to swing my hat and shout "eureka." I wish that all my subscribers would give it a trial, even if the queens are not bought of me. About two days before the queen is to be sent I send a postal card saying that the queen will be sent about such a date, and then the card goes on to say:-

As soon as you receive this notice, remove the queen from the colony to which you expect to introduce the new queen. When she arrives, put her away in a safe place until after sundown, just at dusk, then light your smoker, and when it is well to going put in a pipeful of smoking tobacco, put on the cover, puffuntil you get an odor of tobacco, then puff one or two good puffs into the entrance of the hive. Wait two or three minutes, then puff in another good puff, remove the cover, drive the bees down with a puff of smoke, open the cage, and allow the queen to run down between the combs, following her with a puff of smoke, and put on the cover. hour later, light up the smoker again,

putting in the tobacco as before, and puff two more good puffs in at the entrance. If no honey is coming in, feed the colony a pint of syrup each night from the inside of the hive, but don't disturb the brood-nest for four or five days.

CAUTION NECESSARY WHEN TRANSFER-RING BY THE MODERN METHOD.

The Heddon method of transferring, which is called the Modern Method by its author to distinguish it from the old style of prying apart the hives, cutting up the combs, and fitting them into the frames, is simply that of driving or drumming out the queen and most of the bees from the box hive, and hiving them on the old stand upon frames filled with wired foundation. Twenty-one days later all of the brood will have hatched, when the bees are again driven out and united with the first drive. This leaves the old hive free from brood, when the old combs may be melted up into wax. It is far superior to cutting out and patching up a lot of old, irregular, crooked combs; but caution must be exereised as to the number of bees that are left upon the old combs of brood. Otherwise, if a cool night follows the driving, some of the brood may suffer and die. Mr. J. D. Bixby, of Grooms, N. Y., writes me that he transferred five colonies on a warm sunny day during basswood bloom, in the year 1898, leaving what he supposed was a sufficient quantity of bees to care for the brood, but the temperature fell to 60° the next night, and the result was several combs of chilled brood. So little of the brood hatched that at the end of 21 days there were scarcely enough bees in the five hives to make one good colony. The next year, about the middle of May, when raspberries were in bloom, he tried this plan on seven colonies, leaving about a quart of There was bees with each old colony. not so much brood to care for as there would have been in July, and he thought he was leaving plenty of bees, but the

result was much the same as before. About July 1st, he transferred eight more colonies, leaving more bees in the old hive, and this time the result was good. Mr. Bixby does not say how he removed the bees from the combs, whether he brushed them off, or drummed the bees out. I mention this because I think that he would be much more likely to get off more bees when brushing them than when drumming them. Mr. Heddon's instructions are to do the work "about swarming time," and to drum out the bees. When these precautions are taken, the bees that are drummed out are practically the same as a natural swarm, and the old colony is left in about the same condition as though it had cast a When bees swarm naturally there is no loss of brood from its being chilled.

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THE BUFFALO CONVENTION.

Gradually the time for the Buffalo convention is drawing nearer—only two more months—and for that reason all information on the subject is welcome. The following from the secretary has just come to hand, and will prove of interest to any one who expects to attend.

Please say in the Review that the next convention of the National Bee-Keepers' Association will be held in the audience room of the Buffalo Society of Natural Sciences, Buffa'o, N. Y. on the 10th, 11th and 12th of September, next, commencing on the evening of the 10th. The place of meeting is in the Buffalo Library building, corner of Washington and Clinton streets, near the business center of the city.

Railroad rates will vary in the different passenger association territory, from one cent per mile, each way, to one and one-third fare for the round trip. Any one can readily learn the rate on inquiring at their railroad station. The Buffalo bee-keepers will try to provide entertainment at reasonable rates for all attending the convention who will notify Mr. Sidney S. Sleeper, Holland, N. Y. by Sept. 2nd, of their wish for entertainment.

In a letter just received from Mr. Sleeper he says: "We want all to come who can, for we wish to make the Buffalo meeting the most pleasant and instructive one that was ever held in America. We will have the co-operation of all the sciences as well as the school board, and

he names some professional men who will be present to help; and in a long letter from Mr. Hershiser he closes by saying "call upon me for whatever further assistance I am able to render," and several others have offered to do all they can to provide for the comfort of the delegates.

As stated in my previous convention notice in the Review, there will be no set program and no papers, but the time will be occupied in asking, answering and discussing questions; except that on the evening of the 12th there will be a joint meeting of our association with the American Pomological Society to discuss the Mutual Relations of Bee-Keeping and Fruit Growing;" and Prof. Beach of the New York Agricultural Experiment Station, and Prof. Fletcher of the Central Experimental Farm of the Dominion of Canada will help talk for the bees at that session; and it is hoped that much good will result to the fruit growers and bee-keepers from this joint session.

If any bee-keepers who can not attend the convention have any knotty or other questions they would like to have answered at the convent on, and will send them to me, I will see that they are presented to the convention. In my previous notice in our bee-keepers' publications I said "any one not being able to be at the convention, having any question, or questions they may wish to have discussed, can send them to the Secretary at any time," and the editor of one of the journals wrote me, in substance, that, "with such a request in all the journals you will be deluged with questions." That notice was given in the April journals and I've not yet received a single question. Perhaps all the beekeepers who read the notice, (and perhaps 30,000 or more saw it) expect to be at the convention, or perhaps they are so well informed they don't care to ask any questions.

A. B. MASON, Sec'y.

FEEDING BACK.

This issue of the Review contains two quite interesting articles on the subject of feeding back extracted honey to secure the completion of unfinished sections. The method of feeding that is described by Mr. Fargo is decidedly novel. If one had broken pieces of comb honey, that method might be all right; but for the feeding of extracted honey I think that I should prefer a regular feeder that could be set upon the top of the hive in which the work is being done.

Mr. Getaz goes at the matter in a scientific manner. I presume that he is cor-

rect in most of his deductions-perhaps all of them. There are one or two points in which I think a little farther consideration may not be out of the way. For instance, he speaks of the amount of honey used in the preliminary feeding, that is, honey that will be stored away in any empty cells that there may be in the brood-chamber. If the feeding is begun just as the flow from basswood is beginning to slack up, this preliminary feeding will not amount to much if the broodnest is properly contracted. If we wait until the harvest has been over a week or two, it will then require several pounds of honey to put the colony in trim again. The moral is to watch things closely, if you intend to feed back, and have everything in readiness to begin the work just as soon as you are certain that basswood has slacked up for the last time. tract the brood nest to the capacity of five Langstroth combs. Don't have more than that A less number is better so far as results in the work of completing sections is concerned, but is likely to result in a weakened colony unless the colony is strengthened by adding to it cases of sections, bees and all, from other colonies. My preference is to contract to either three or four Langstroth combs, selecting those that contain the most brood. I keep the queen on these combs by the use of an excluder. At the close of the feeding season I have found these combs simply solid sheets of brood —there would not be a half a pound of honey in the brood nest.

Mr. Getaz estimates the average, daily consumption at 1½ pounds per day. This is, perhaps, a fair estimate; but it must not be forgotten that, even though no feeding were being done, there would still be some consumption; although probably not so much, as the feeding acts as a stimulus.

The point that he makes in regard to the limited capacity of some feeders is well taken. When a tin pan is used, however, a piece of burlap is put in as a float, which allows standing room for a large number of bees. The feeder that I use, the Heddon, has a series of upright slats that would certainly afford standing room for more than 1,200 bees at one time.

In the Northern States, where there is a dearth of honey from the middle of July, when basswood closes, to the last of August, when buckwheat begins to vield, there is a period of some five or six weeks of hot weather in which, so far as profitable results are concerned, extracted honey can be fed back for securing the completion of unfinished sections. As a rule, however, I think that the average bee-keeper, will find it more profitable to sell in his local market such sections as are nearly completed, but not finished quite enough to ship. The others he better extract, or else let the bees carry off the honey, and then save them for use the next spring. In my experience, a set of partly drawn combs in the spring has been the equal, or resulted in the securing, of a case of finished honey.

If the bee-keeper, at the close of the basswood harvest, finds himself in possession of a lot of unfinished sections, and plenty of extracted honey, he can, if he wishes, by following the right methods, feed back the extracted honey and secure the finishing of the sections at a profit.

Some have regarded feeding as an unpleasant task. It is if there is a lack of proper utensils and methods. The first thing to be considered is the feeder, know of nothing better than the Heddon. It covers the whole top of the hive. not likely to leak, but, if it does, it leaks inside the hive. It can be removed as easily as a super, and that without exposing the feed. It can be filled without daubing the bees, or disturbing them, or exposing feed. It has abundant capacity both for bees and feed. It is par excellence. It is the one feeder that I ever thought enough of to make any.

Thin the honey by adding boiling water. Get it about the consistency of nectar. Draw it off into a large sprinkling pot, from which the rose has been

removed. Walk along at dusk, by the colonies that are being fed, slide back the cover a little from one end of the reservoir and fill the reservoir spout of the sprinkler. the feeding is a very short, clean tasknothing dauby, nor mussy about it. think that I have enjoyed feeding back as much as I did any work in the apiary. There is a certainty about it that is very gratifying. So many pounds of unfinished sections, so many pounds of extracted honey, and so many pounds of finished sections. Of course, the result is not always the same, but is so, approximately. For instance: Suppose that I had 100 pounds of unfinished sections, and 100 pounds of extracted honey, I could feel sure that I would have 160 pounds of finished honey.

Black bees do the best work; hybrids next; then come the dark Italians. Light Italians do very poor work in feeding back.

Sort over the sections, making two grades of them as regards their completion. Contract the brood nests of the colonies that are to be employed. the cases of sections around, one on a hive, but not on the hives containing the colonies that are to be employed in feeding back. The bees will go up and occupy the sections. Now gather up the cases, bees and all, and put two cases on each hive. This is done to secure populous colonies, as they do the best work in feeding back. Thave never had trouble from the bees quarreling. Put a case of nearly finished sections next to the brood nest, and those that are not so nearly finished on top, and then the feeder.

Note the peculiarities of the different colonies. One will take down the feed and draw out the combs much better than will some of the others. Another colony will be a poor "feeder," but will cap the honey much better than some other colonies will cap their honey. As the work progresses, and fewer colonies are needed, throw out those that do the poorest work.

REQUEENING COLONIES.

Is it Advisable, and, if so at What Time of the Year Should it be Done?

Mr. Edwin Bevins sent to Mr. C. P. Dadant the following query in regard to the requeening of colonies:—

Mr. C. P. Dadant:—In the American Bee Journal of Feb. 14, I had an article, one paragraph of which related to the introduction of queens in the fall. said that I requeened one-fourth of my apiary last fall, and that most of the work was done in October, and the early part of November. I also said that one reason why I liked to do this work so late in the season was because the colonies were in almost every instance broodless (the printer made me say "too deep" for broodless), and that because the bees had no means for starting queen-cells I did not have to be so particular about the time of giving the new queens. I had requeened some broodless colonies as late as November in years before, and did not see but that they did as good work the following season as any other colonies in the yard.

On the same page (102) are given Dr. Mason's views regarding the best time to requeen an apiary. He says that just as the honey-flow is closing up, and before it closes, is the best time to requeen an apiary, and gives as a reason that the bees must have the vim and energy they have when the honey-flow is on.

Now, if I am very much in error in preferring to do the work later in the season, I would like to know it, and the reason why.

I write this to request that you give your views and experiences on the subject of the best time to requeen an apiary, in the columns of the American Bee Journal. I want particularly to know what disadvantages, if any result from late requeening?

Through the American Bee Journal, Mr. Dadant makes the following reply:—

Perhaps I am hardly fit to pass an opinion. I will frankly acknowledge that I never did but once change queens in any of my colonies late in the season, either during or after the flow. I have always allowed the bees to do their own "requeening." except in cases where the queens were infertile or of impure blood. At the time when we were breeding Italians for sale, this had quite an importance. But since we have been keeping

bees only for honey, we have had less reluctance in allowing the impurely mated queens to live, if they are prolific. My reasons for not requeening an apiary, when the queens become old and possibly near their decrepitude, date back a good many years. I will have to tell you how this came about.

The much lamented Mr. Quinby, about 1868 or 1870, invented what was called the "queen-yard." It was a shallow square box, set in front of the alightingboard of each hive, walled with tin about four inches high, and with a tin edge projecting inward horizontally all around, to prevent swarming. The queen's wings were clipped so that she could not possibly jump over the walls of the queenyard, and as the tin projection prevented her from climbing out, she was practically a prisoner in the front yard of her own hive. This was securing the same result which is now secured with the queen-trap but with the greater convenience for the bees, of having nothing in the way of their flight or of their free access to the hive for ventilation, etc. The only objection was that the queens' wings must all be clipped.

We used this queen-yard largely, and it was owing to this method of clipping queens' wings that we ascertained how readily the bees would supersede their old queens without the knowledge of the apiarist. Often, 7es, in many cases, we found that the clipped queen had been replaced by a vounger one, without our really suspecting the change. And yet, at that time, we were very prone to examine the hives from end to end on the slightest pretext. We spent more time then on one hundred hives than we would think of spending on 400 to-day. But I must say that it paid, in dollars and cents; for the extra attention was

rewarded by extra results.

The reader will now perceive why we did not practice requeening. We found that in many instances we might be destroying young queens which the bees had reared in anticipation of the old age and

failure of the mother.

But requeening is certainly a very good method, if it is not carried to extremes, for inferior stock may thus be replaced by selected stock from the very best colonies. Only I would not limit this to any particular moment, but would do it whenever I had a stock of good queens to spare.

The methods pursued by Dr. Mason and Mr. Bevins, as mentioned at the head of this article, both have their good points. The only objection that I can find to that

of Mr. Bevins is the possibility of a shortage of drones, if we wait until the season is nearly over. One time, years ago, we had occasion to sell ten tested Italian queens after the end of the harvest, some time late in October. We had no queens except in full colonies, but as the price was high, we did not hesitate to remove that number, expecting the colonies to rear young ones, and they did. the time our queens were ready for fertilization the drones must have been too scarce, although we had taken pains to keep all we could in a few queenless colonies, for not one of our young queens was fertilized, and the following spring we had ten drone-layers of the very best quality in ten of our very best colonies. And, by the way, let me here remark that this is a very good way to have early drones. We took advantage of this to rear early queens, and they were all purely mated before the impure drones hatched in our neighborhood. The possibility of the queens failing to mate seems to be the only really strong argument against requeening an apiary late

There is perhaps another objection arising from the difficulty of manipulating hives much in cool weather, and when robber-bees are as alert as they generally are at that season. But these objections fail to embarrass a practical apiarist, because he will take his time, and use enough precautions to avoid disturbances. In out-apiaries, however, where a man can give his personal supervision only at times, I should not like to do much of this handling after the

honey crop has ended.

I would suggest that the most economical plan to requeen would be to rear queens more or less during the entire ever, we choose to do it all at one time, I would hardly wait till all the brood was hatched out, unless the season was particularly favorable, and we could make sure of securing a sufficient number of drones as late as desired. Since Mr. Bevins has succeeded, it shows that the thing can be done, and it has the advantage of not disturbing the bees during If the queen is removed bebefore the end of the harvest the brood that hatches out will give room for honey in the brood-chamber, and quite a portion of the crop may be placed there, out of the reach of the apiarist, unless he resorts to the extractor.

My own opinion of the matter is just this:—There are systems of management

in which it is wise to replace all queens that are lacking in prolificness; but in this locality my remedy would be to replace the system with one that did not call for extra prolificness on the parts of the queens. It is the same old story over again, of using large hives and then working every scheme to secure queens that will fill the combs with eggs, instead of using hives of such a size that queens of ordinary prolificuess will keep the combs filled at the proper time.

There is still another way of looking at it: It is intensive versus extensive bee-A man with a few colonies keeping. may requeen them each year, and force up the product, per colony, to a large figure, or he may put in the same amount of time with a larger number of colonies not run at such a high pressure, and secure as great, or greater profits.

I would introduce queens for the sake of improving my stock, but it would be an exceptional case in which I would introduce queens simply to exchange old queens for young ones. To buy queens costs a lot of money; to rear them costs a lot of time; I think both better be invested in an additional apiary. I don't object to having young queens in the hive in the spring; and if the management is such that this comes about naturally, with little or no extra labor on the part of the apiarist, well and good; but to go to the work of rearing a lot of extra queens, and then hunting up the old queenswell, I wouldn't do it.

There is one point that Mr. Bevins brings up that it might be well for us to remember, and that is the ease with which queens can be introduced, or rather the certainty with which they will be accepted, after all of the brood has hatched in the fall. The bees, when the old queen is removed, are then hopelessly queenless, and will almost invariably accept a queen. Neither is there any loss of brood while the queen is being introduced, as is sometimes the case earlier in the season. Work with the bees at this time of the year is not usually very pleas-

ant, and, as suggested by Mr. Dadant, must be accompanied by the necessary precautions to prevent trouble from robbers. One thing more: The handling of bees so late in the fall that they have clustered closely is not likely to leave the colony in good condition for winter. remember introducing four queens for a neighbor once so late in the fall that the bees were closely clustered and "dumpish." Every one of those four colonies died before spring, while the rest of the colonies in the apiary came through in fair condition. After the bees have settled down for winter, I believe we better leave them alone.

YELLOWSTONE PARK.

Extended tour, leisurely itinerary with long stops in the Park. Private coaches for exclusive use on the drive. Pullman sleeping and dining cars. Established limit to number going. Escort of the American Tourist Association, Reau Campbell, General Manager, 1423 Marquette Building, Chicago. Colorado and Ālaska tours also.

Tickets Include all Expenses Everywhere.

Train leaves Chicago via Chicago, Milwaukee & St. Paul R'y, Tuesday, July 9, 10.00 p. m.

BARGAINS!!

No. 2 Sections, 500 for \$1.00; 1,000 \$1.75; 5,000

Fence-separators, I. P. & S., per 100, 50 cts. Double-tier, 24-lb, shipping cases, with three-inch glass, in lots of 50, eight cents each. Daisy Foundation Fastener, without lamp,

fifty cents each.

Doolittle Wax Extractor, \$2.00. A full line of Supplies at greatly reduced Address

The Cascade Bee Hive Co., (W. H. PUTNAM. AGT.)

River Falls, Wisconsin.

Bee - Supplies.

Root's goods at Root's prices. Pouder's honey jars. Prompt service. freight. Catalog free. Walter S. Pouder, 512 Mass. Ave., Indianapolis, Indiana. Only exclusive bee-supply house in Ind.

We want 1000

Readers of the Bee-Keepers' Review to have a coyy of



Doolittle's

Scientific

Queen

Rearing.

We have just printed a new edition of this fine work, bound in flexible leatherette cover, with round corner. The price, postpaid, is 60 cents; or, with the Weekly American Bee Journal the rest of 1901 (from the time your new subscription is received)—both for only \$1,00. Better order AT ONCE if you want a bargain. Remember we are

Headquarters in Chicago for

Bee-Keepers' Supplies.

Catalog and sample copy of the AMERICAN BEE-JOURNAL, FREE. Ask for them. Address

George W. York & Co.
144-146 Erie St., Chicago, III.

Tease mention the Review.

SEASONABLE REMARKS.

Of all the bees I have tested, I find the Hutchinson "Superior Stock" superior for gentleness and industry, and hence I am breeding largely from a choice breeder of this strain, and having the young queens mated in a Golden yard. well known, I have made the breeding of Goldens a specialty, and spare no pains in trying to improve them by careful selection of both drone and queen mothers, The season has been favorable for securing perfect development, and I am now prepared to fill orders for queens promptly, at 75 cts. each; 6 for \$4.00; or \$7.50 per doz. Money order office Warrenton, N.C.

W. H. PRIDGEN.

6-01-tf Warren Co., Creek, N. C.

There we are to the Front for 1901 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. We also carry a complete line of other supplies. Catalog free. R. H. SCHMIDT & CO., 9-99-tf. Sheboygan, Wis

Please mention the Review.

I have several hundred

QUEEN CAGES

of different styles and sizes, made by C. W. Costellow, and I should be pleased to send samples and prices to any intending to buy cages.

W. Z. HUTCHINSON, Flint, Mich.

MY GOLDEN AND LEATHER - COLORED

Italian Queens

Are bred for business and beauty. I furnish queens to the leading queen breeders of the U. S., and have testimonials from satisfied customers in the U. S. and foreign lands. Give me a share of your orders—they will be filled promptly. Tested queens, before June 1st, \$1.50 each. After June 1st, tested queens, either strain, \$1.00 each; untested, 75 cts. each. One-frame nucleus with queen, \$1.50; two-frame, \$2.50; three-frame, \$3.25.

4-00-tf

J. W. MINER, Ronda, N. C.

Please mention the Review.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland Queen," the only bee paper published in the South. All free for the asking.

3-99-tf

THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

Please mention the Review.

R-I-PANS

There is scarcely any condition of ill-health that is not benefited by the occasional use of a R. I. P. A. N. S. Tabule, and the price, 10 for 5 cents, does not bar them from any home or justify any one in enduring ills that are easily cured. For sale by Druggists.

The Best Bees.

As I have several times mentioned in the editorial columns, my object in life is the good of bee-keepers. That I earn my living while thus engaged, makes me none the less sincere. In my younger days I taught several terms of district school. After securing a school I forgot, for the time-being, that I was earning money. I went in to teach those children, and do them all of the good that I possibly could. For weeks at a time, the thought never came to me that I was working for wages. I should be doubtful of the success of a teacher who taught simply for money. Now I am working for the good of beekeepers. As in the case of school teaching, I have become so interested that I often forget that I am earning my living by the work that I am doing. I should also be doubtful of the success of a bee-keeping editor who worked simply to make money. With that object in view, there are other occupations in which he could engage to better advantage. - .

I am trying to get bee-keepers to keep more bees, scatter them around the country, and learn to manage them with the least possible labor. I am trying to get bee-keepers to organize and secure the benefits of co-operation. I am trying to arouse them to the danger hanging over their heads from contagious diseases among bees, and to get them to bestir themselves and rid the country of these plagues. I am also striving to show them the importance of improving their stock-that there is just as much difference in bees as in other stock. Not only this, but circumstances have been such that I have been able to discover what, I am thoroughly convinced, is a strain of bees that are the equal, if not the superior, of any bees in this country; and I am trying to scatter this stock through the country. As I have said before, that I am earning my living while thus engaged does not make me any less sincere.

These bees are the dark, leather-colored Italians. They are gentle, industrious and hardy, and cap their honey as white as do the blacks. No bees, that have had their tongues measured, have shown a greater tongue-reach than have these bees. While there is little doubt that length of tongue and superior honey gathering

qualities go hand in hand, it has not yet been PROVED, while it has been proved that THESE bees are very superior, whether it is from length of tongue or not. The price asked for these bees is higher than for common stock, and ought to be; superior stock always sells for more than common stock or scrubs. The Roots are now asking \$10.00 for a queen whose bees show a tongue reach of 19-100; \$15.00 for one whose bees show a reach of 20-100; and \$25.00 for one whose bees have tongues measuring 21-100; and it is all right to ask these prices. I hope that Mr. Root will sell a lot of these queens, as, the more such queens are scattered around the country the better stock will there be. Only a queen breeder, or some one with a large number of bees, could afford to pay such prices, but the ordinary bee-keeper can afford to pay the \$1.50 that I ask for a queen; and, while I do not guarantee the length of the tongues of the bees that such a queen will produce, it is true that the mother of these queens produces bees having a tongue-reach of 21-100. Not only this, but I guarantee safe arrival, safe introduction, if directions are followed, purity of mating, and complete satisfaction to the extent that, if, for any reason, the purchaser desires to return the queen inside of two years, he can have his money back and 50 cents in addition to pay for his trouble.

Besides this, there is a way in which one can get one of the queens for only one dollar, and that is in connection with a subscription to the Review. For \$2 00 I will send the Review one year, and one of these queens. This offer is open alike to old and new subscribers.

As my older readers know, I do not breed these queens myself. They are reared by a breeder who is neither in the North, nor in the extreme South, but whose name I do not give, simply because, if I did give i . the orders would go to him direct, and I would lose all of the advertising that I have done. A man has to be selfish to a certain extent, and it is all right that he should.

I make in the neighborhood of 50 cents on each queen that I sell, and it is right that I should, but the man who buys one will make dollars where I make cents.

W. Z. HUTCHINSON, Flint, Michigan.

e want

sfaction.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties-Hives, Sections and Comb F indation.

Cash paid for beeswax.

1-01-tf

M. H. HUNT & SON, Bell Branch, Mich.

Improved Golden, and Leather Colored Italians,

what H. G. Quirin rears.

We have one of Root's best red-clover breeders, from their \$200-queen, and a golden breeder from Doolittle, who says: If there is a queen in the U. S. worth 5100, this one is; these breeders have been added to our already improved strain of

queens, for the coming season.

J. L. Gandy of Humboldt, Neb., wrote us on Aug. 15th, 1900, saying that the colony having one of our queens had already stored over 400 pounds of honey (mostly comb). He states that he is certain our bees work on RED CLOVER, as they were the only kind in his locality and apiary. apiary.

A. I. Root's folks say that our queens are extra fine, while the editor of the American Bee Journal tells us that he has good reports from time to time. We have files upon files of unsolicited testimonials. After considering above evidence need you wonder why our orders have increased each year?

Give us a trial order and be pleased, we have years of experience in rearing and mailing queens Safe del very will be GUARANTEED. Instructions for introducing sent with each lot of

queens.

Warranted stock, one queen, 75 cts.; six, \$4.50; twelve, \$8.00; select warranted, one, \$1.00; six, \$5.00; twelve, \$9.50; tested, one, \$1.50; six, \$8.00; twelve, \$15.00; select tested, one, \$2.00; six, \$10.50; Extra select tested the best money can buy, \$4.00.

We have 100,000 **FOLDING CARTONS**Su hand and, so long as they last, will sell them

with your address printed on in two colors, at \$4. per 1000; or 500 for \$2.75. At above prices you can't afford to place honey on the market without cartoning it

Address all orders to H. G. QUIRIN, 01-6 Parkertown, Ohio. 4-01-6 (Parkertown is now a Money Order Office)

Bee keepers should send for our

CATALOG.

We furnish a full line of supplies at regular prices, Our specialty is Cook's Complete hive.

J. H. M COOK, 62 Cortland St. N Y. City

Honey Queens.

Did you know that I am seeking to give my customers the best possible service? Did you know that I have as good, or

Better Queens,

than can be obtained elsewhere?

Many have found this out, and continue my best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES:

Untested queens, 75 cts, each; six for \$4.00. Tested queens, \$1.00 each; six for \$5 00. Write for discounts on quantities. Breeders, of either variety, the very best, such as I would use to restock an apiary, \$2.50. Breeders that produce faultless, five-banded bees, \$5 00 each.

W. H. LAWS, Beeville, Texas.

Please mention the Review.

LARGE APIARIES

wanted in in basswood regions of Mich. or Wis, H. W. FUNK, Normal, Ills.

Every bee-keeper knows the worth of

A Good Queen,

knows the worth of a good strain of bees, also knows how worthless is a poor queen and inferior bees. Our bees rank with the first, and queens stand second to none.

Choice, tested, Italian queens, \$1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed. Send for price list. J. W. K. SHAW & CO., Loreauville, La. 3-91-tf

Please mention the Review.

CUT-OFF LIGHTNING.

A recent addition to our equipment enables us to turn off twice as much work in a given time as our cutter could do before. This saving in labor enables us to use a better grade of material. We send our inspector to the mills that cut for the eastern market. We select the grade of pine that will out up clear. The defects are cut out, and we give you the material, that is without defects, at less than the price of clear lumber. Our basswood for sections is sawed to order. The contract specifies white, winter-sawed, from bolts, second growth. The waste is reduced to the minimum. The bolt-cared characteristic better and characteristic better that the transfer and this enables us to not better work. sawed lumber is better and cheaper than the longer lengths, and this enables us to put better work into the process. The purchaser INTERSTATE BOX & MFG. CO., HUDSON, WIS.

LUIL TON

By special are ments of the ROOT CO, to furnish them queens, I have secured their assistance in procuring the finest breeding queens that a thorough knowledge of the bees of the country and money can procure. Among them is a select daughter of their \$200 queen that they refused to quote me prices on. This queen shows every superior quality of her mother. Her bees show an actual reach of 21-020 of an inch; are large, gentle, and beautiful to look upon

beautiful to look upon.

MR. E. R. ROOT SAYS: "You have as fine bees as there are in the United States; and with a direct cross of their breeders you should be able to produce queens whose bees show a reach of 25-100 of an

inch.

Resent for descriptive price list. Watch this space, and don't forget my long-tongue stock is the best that money and knowledge can procure.

edge can procure.
Prices: Untested queen, \$1.00; 6, \$5.00.
Tested queen, \$1.50; 6, \$8.00. Fifty select breeders from long - tongued strains, \$2.50

IMPORTED ITALIAN STOCK.

APIARY NO. 2.

Imported Queens, Daughters and Grand-daughters.

GOLDEN, OR 5-BANDED ITALIAN.

APIARY NO. 3.

Breeders, select tested, tested, and untested queens.

REMEMBER the bear picture goes as a premium on six queens. 1901, unt sted queens will be ready to mail March 25 to April 1st. Send in your order at once, and get in on the ground floor. Breeders, select tested, and tested queens go by return mail.

W. O. VICTOR, WHARTON, TEXAS.

QUEEN SPEC ALIST.

THE

A. I. ROOT CO., 10 VINE ST., PHILADELPHIA, PA BEE-SUPPLIES.

Direct steamboat and railroad lines to all doints. We want to save you freight.

JOHN F. STRATTON'S



Importers and Wholesale Dealers in all kinds of

MUSICAL MERCHANDISE,

Violins, Guitars, Banjos, Accordeons, Harmonicas, &c., all kinds of Strings, etc., etc.

811, 813, 815, 817 East 9th St., New York.

mperial Strain of Red Clover Queens.



The largest queen rearing apiary in the North; the nost hardy bees the most gentle bees; and bees that work on RED CLOVER. Breeder direct from ITALY; workers' tongues measure 26-100—over ¼ inch in length. 22 years' experience; hundleds of nuclei; nu lititudes of choice drones; orders coming every day. Send your order and pay when queen is ready to ship. Can mail untested queens by June 10th, tested, latter part of June. Prices: Untested.

June. Prices: Untested, \$1.00; six, \$5.50; twelve, \$10.00; tested, \$2.00; breeders, \$5.00; fine imported

queens, \$6,50. Circurlar free.

THE STATE AGRICULTURAL COLLEGE.

Dept. Zoology Entomology and Physiology.

C. P. GILLETTE, M. S. PROFESSO.

ELMER D. BALL, M. S.

E. S. G. TITUS, B. S.

ASSISTANTS.

FT. COLLINS, Colo., Nov. 9, '00

Mr. A. D. D. WOOD, Lansing, Mich.

Dear Mr. WOOD.—Your letter and the bees are here, the latter all alive and vigorous. I have measured their tongues as you request and find they run very uniformly as follows:

Whole reach of "tongne," from base of submentum to tip of lightle 26 years of uninely lightle.

mentum to tip of ligula, 26-100 of 'n inch; ligula alone to the dark mentum, 17-100 of an inch.

There were nine specimens and all their tongues were measured.

Very truly, C. P. GILLETTE.

A. D. D. WOOD, Lansing, Mich.

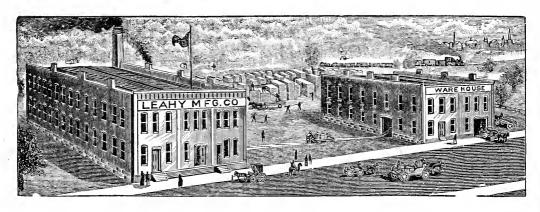
I am advertising for B F. Stratton & Son, music dealers of New York, and taking my pay in

MUSICAL INSTRUMENTS.

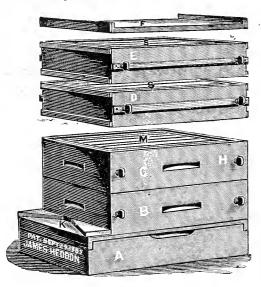
I have already bought and paid for in this way a guitar and violin for my girls, a flute for myself, and one or two guitars for some of my subscribers. If you are thinking of buying an instrument of any kind, I should be glad to send you one on trial. If interested, write me for descriptive circular and price list, saying what kind of an instrument you are thinking of getting.

W. Z. HUTCHINSON, Flint, Mich.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bee-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Higginsville, Mo.. East St. Louis, Ills. Omaha, Nebrasha.

DADANT'S

Foundation

By the new **Weed Process** is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1901
is Ready. Send for a Copy;
it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world.

G.B. LEWIS CO., Watertown, Wis., U.S A.

Branches:— G. B. Lewis Co., 19 So. Alabama St., Indianapolis, Ind.

Agencies:—
L. C. Woodman, Grand Rapids, Mich.
Fred Foulger & Sons, Ogden, Utah.
E. T Abbott, St. Joseph, Mo.
Colorado Honey Producers' Assn.,

Denver, Colorado.

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

Marshfield

Mfg. Co., Marshfield. Wis,

Queens.

For 20 years I have made a specilaty of queen rearing. My apiary is located several miles from other bees; hence I am able to secure the mating of my queens with drones from the most desirable colonies. Special attention is given to the selection of both queen-and-drone mothers from colonies that show marked industry, and cap their white. Safe arrival guaranteed, and every queen warranted to produce light yellow, 3-banded, gentle workers. Should a queen prove unsatisfactory, she will be replaced, or money refunded. Queen Queen shipped the next day after the order is received, unless otherwise requested. Ready to ship June 1st. Price 75 cts. each.

JAS. F. WOOD, No. Dana, Mass.





ADVERTISING RATES.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times,

On 20 lines and upwards, 3 times. 10 per cent; 6times, 20 per cent; 9 times, 30 per cent; 15 times, 40 per cent.

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the Review with—		
Gleanings, (new)	(\$1.00)	. \$1.75
American Bee Journal (new)	(1.00)	. 1.75
Canadian Bee Journal	(1. 00)	. 1.75
Progressive Bee Keeper	(.50)	1 35
American Bee Keeper	(.50)	1.40
The Southland Queen	(1.00)	1.75
Onio Farmer	(1.00) .	1.75
Farm Journal (Phila.)	(.50).	. 1.10
Rural New Yorker	(1.00)	1.85
The Century	(4.00)	4.50
Michigan Farmer	(-1.00)	1.65
Prairie Farmer	(1.00)	. 1.75
American Agriculturist	(1.00)	. 1.75
Country Gentleman	(2.50)	3.15
Harper's Magazine	(4.00)	4.10
harper's Weekly	(4 00)	4.20
Youths' Companion (new)	(1.75)	2.35
Cosmopolitan	1.00)	. 1.90
Success,	(1.00)	. 1 75

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee - Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1,, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent,; except that a few dealers charge only five per cent, when a shipment sells for as much as one hundred dollars as one hundred dollars.

NEW YORK-Demand for all grades is fairly good, while receipt are liberal. We quote as follows: Fancy white, 14 to 15; No. 1 white, 13; No. 2 amber, 12; fancy dark, 10 to 11; Beeswax

FRANCIS H. LEGGETT & CO.

Oct. 1. W. Broadway Franklin & Varick Sts. BUFFALO—Fancy honey getting some better, but dark moves slowly. We quote as follows: Fancy white, 15 to 16; No. 1 white, 13 to 14; fancy amber, 10 to 12; No. 1 amber, 9 to 10; white extracted, 5 to 6; beeswax, 22 to 28.

BATTERSON & CO.

Oct. 2, 92 Michigan St., Buffalo, N. Y.

CHICAGO-Good demand for comb honey. Fancy white, selling at 15; anything extra fancy would bring 16; amber, 12 to 13; dark, 10 to 11; extracted, as to quality and package, selling from 5 to 7; beeswax, 30.

S. T. FISH & CO.,

Sept. 30. 189 So. Water St., Chicago, Ills.

CINCINNATI, OHIO— The honey market is rather dull on account of the warm weather. Extracted sells only to manufacturers at from 5 to 6 cents. White clover from 8 to 9. Fancy white comb honey sells from 13½ to 15½.

C. H. W. WEBER,

Aug. 10. 2146 Central Ave., Cincinnati, Ohio.

KANSAS CITY.—New crop is just coming in, and is being taken freely. Shipments and correspondence solicited. All orders filled promptly. We quote as follows: Fancy white, 14 to 15; No. 2 white, 13; fancy amber, 12; No. 1 amber, 11 to 12; No. 1 dark, 10; white, extracted, 8 to 9; amber, 7½ to 8; dark, 6½ to 7; beeswax, 25 to 28.

W. R. CROMWELL FRUIT & CIDER CO., 423 Walnut St., Kansas City, Mo. July 30.

NEW YORK-Comb honey is in good demand; not over stocked; extracted is dull with plenty of supply of all grades; beeswax weak. Fancy white, 15; No. 1, white, 13 to 14; fancy amber, 12; No. 1 amber, 11; fancy dark, 10 to 10½; No. 1 dark, 9½ to 10; white, extracted, 6 to 6½; amber, 5½ to 5¾; dark, 5 to 5¾; beeswax 27.

HILDRETH & SEGELKEN,

265 & 267 Greenwich St., Cor. Murray St. Sept. 30. New York

CHICAGO-White comb honey is selling at 15 cents per pound, with occasionally a little more being obtained for fancy; that which does not grade No. 1 selling at from 13 to 14; with the light amber at 12 to 13; dark honey of various kinds selling at 10 to 11; extracted is in moderate demand at from 5½ to 6½; for the various grades of white, some fancy white clover and basswood bringing 7; light amber ranging from 5¼ to 5¾; dark at 5 to 5¼; beeswax firm at 28 to 30.

R. A. BURNETT & Co.,

Sept. 18. 163 So. Water St., Chicago, Ills.

WANTED—To buy your honey. State your lowest cash price, kind and quantity.
EDW. WILKINSON, Wilton, Wis.

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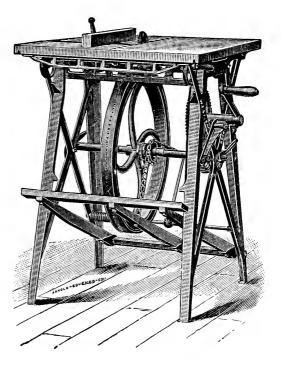
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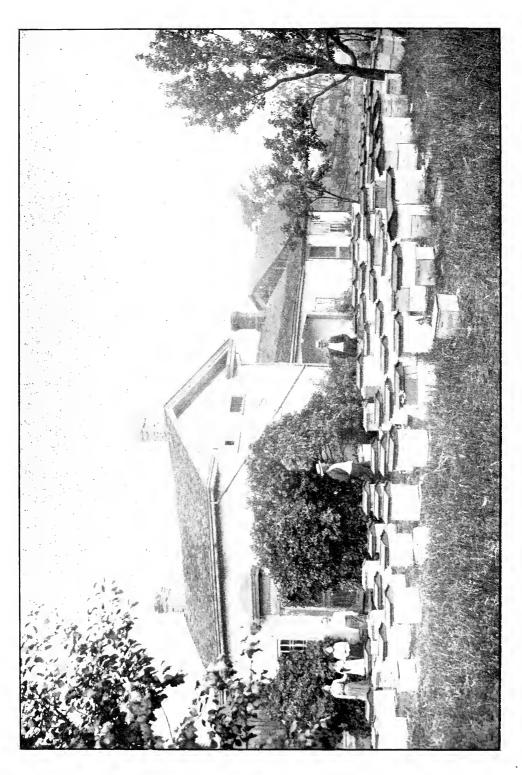
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W. Z. HUTCHINSON, Editor and Proprietor.

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REPARATIONS FOR WINTERING BEES IN NORTHERN CLIMATES. BY H. G. SIBBALD.

Although the wintering of bees is a very old subject, and has been written upon time and again, debated and threshed out at conventions until one would think nothing more need or could be said; all surely know now how to winter bees. But is it so? Do we not, from time to time, especially this last season, hear the cry: "My bees wintered poorly; lost nearly half; the balance were not strong; and so we did not get much honey."

Wintering bees successfully, that is, so that few colonies perish, and all come out strong, with bees healthy, well preserved, and in condition to rear a family and see them well to do in the world, is of vital importance; and on it, more than anything else, depends the honey crop.

Seeing, then, the importance of this work, let us leave no stone unturned that might help us to obtain the desired end. Being well prepared is half done; and a little labor spent in preparation is well spent; therefore, as early as August 1st, examine each colony; see that each has a

good laying queen and sufficient honey for a rainy day.

About September 1st to 15th, contract all colonies down to about six or seven average combs; following them with a division board. If these combs are filled with sealed stores, they are ready for winter. If they are not, the bees must be fed until 25 to 35 pounds are stored and sealed.

Our bees will be found crowded; no chance for moisture, cold or dampness to settle in their living room, and they are ready to pack if to be wintered out side. Place two or three inches of some of the many packing materials recommended (only be sure it is very dry) around the sides of the hives, put five or six inches on top, see to it that a water proof cover is provided, prop the hives up well and very little more is needed—a good windbreak is advantageous.

To winter inside (which is my favorite way if a good cellar can be obtained) leave the bees on the summer stands until about November 20th, when the cold rough weather generally sets in, in this climate.

The cellar has already been prepared; partitioned off, if much larger than required, stands ready to place hives on,

well aired, dry and sweet as possible. The stands that are to receive the hives are raised at one side so that the hives are two or three inches higher behind than in front when placed on them. After carrying them in as gently as possible, pry up each hive behind, 3/8 of an inch from the bottom board, blocking it there; this allows a current of air to pass under the combs and keeps all dry and sweet. Tier up as high as convenient, and continue until all are in; having adopted some plan so that each can be placed back on its own stand; for a winter is as few nights to the bees, and they know their stands and will mix more or less if not given their own street and number.

Early in the winter the cellar need not be closed very tight, plenty of ventilation allowed, but as soon as decided cold weather sets in, close up all tight, and very little if any ventilation is necessary.

I have never seen the need of artificial heat. Once or twice through the winter sweep up the bees on the floor—it will keep it sweeter and better. If prepared and wintered as above, few vacant stands and few poor colonies will be found when the time comes to set out.

CLAUDE, Ont., Sept. 10, 1901.



OME THEORIES REGARD-ING QUEEN-INTRODUC-TION. BY B. F. JONES, M. D.

You remember that in the last October number of the Review I wrote you my method of introducing queens with tobacco smoke, after failing frequently with other methods. It has the advantage over other methods of being direct, short and quick. I see by the June issue that you have adopted it, and, so far, have not met with a failure, which I am pleased to hear, and hope that by a little effort I may be the means of saving a great deal to the bee-keepers of the world. Now let us reason why it is a success.

In my student days, at college, one of the Professors asked for volunteer diagnosis from the class, after the symptoms had been elicited from the patient. Several were offered; and, to me, none seemed correct; so I ventured one. Immediately the Professor "closed the case," and began the discussion, rejecting all the others. Coming to mine, he asked for a reason for the "faith within me." I was right, but could not give a reason. This taught me to go to the bottom of things, and, before acting, reason them out

Now, as to introducing. It is a well known that fact the bees of a colony recognize each other by the sense of smell. Smoke a colony with ordinary smoke, when robbing is in order, and the colony cannot resist an attack, because of the inability to recognize the robbers. bacco has a two-fold effect. It is a powerful narcotic, besides, owing to its pungent character, it renders all of one scent much more so than ordinary smoke. Then, again, from its narcotic effect, the bees are so stupefied as to stop all efforts at quarreling, or in resenting the intrusion of a queen; and by the time the effect has subsided they are all of a happy family.

At the beginning of my bee-experience I clipped my queens by holding them in one hand, using the scissors with the other. All young queens were so treated as soon as found laying. I soon found a large proportion (half or more) missing, and either cells started or a new queen, with wings, reigning. This set me to thinking; and I finally arrived at this conclusion: the handling of the queen so changed the scent that the bees did not recognize her; they killed her and then raised a new one. I then clipped all without touching them, while they were running over the combs, a proceeding which can be accomplished with perfect ease after a little practice. The result was what I anticipated.

Now for more proof. On page 522, Gleanings, is this statement: "When one

practices clipping for a series of years he will be suprised how many colonies he will come across that have changed queens unbeknown to him. Half of the queens reared in 1899 were found superseded this spring in a large apiary in New York. We have had a similar experience in our yards. Unless a queen has been clipped, one can not be sure of her identity." Moral—Don't touch the queens except with the point of the scissors, and only clip one entire wing.

This is not all the proof that can be offered in defense of my position, as I have frequently seen it mentioned that some have thought they would discontinue the practice of clipping because they found so many queens missing, and that, too, before old age or failing could possibly be the cause.

IDAHO FALLS, Idaho, July 20, 1901.



NTRODUCING QUEENS—LATE INTRODUCING AFTER BROOD IS GONE, NOT ALWAYS SUCCESSFUL. BY J. A. GREEN.

I notice in a recent number of the Review that the tobacco smoker method of introducing queens is not meeting with all the success hoped for from the earlier experience with it.

This is no more than was to be expected; as I believe no infallible method of introducing queens, under all circumstances, will ever be discovered. The method that works perfectly during a good yield of honey does not produce the same results when honey is scarce.

Sometimes what succeeds well in the hands of one man is more or less of a failure when another tries it; although he attempts to do exactly as the first man did.

Theorizing on the subject does not always help us. The editor of the Review, in writing on the subject some time ago, considered late in the fall a very favorable time for introducing queens; arguing

that the fact that the bees were entirely destitute of brood, and, consequently, of any means of rearing another queen, which would render them more kindly disposed toward a newcomer. This looks I believed it myself last season, and, so, when, late in the season, I found myself with more time than usual on my hands, and a queen breeder agreed to let me have a number of queens in settlement of an old account, I considered the time opportune for requeening a part of my apiary. Accordingly, about fifty queens were introduced at the very end of the season; so late, in fact, that cold weather caught me before I had a chance to look over the colonies to be sure the queens were safely introduced. I had not much fear on that score, for I believed the time one of the best that could be found, and I used a method of introduction that I considered almost infallible; having introduced a large number of queens during several seasons with less than two per cent of losses. But when I came to look over my colonies in the spring, I found a considerable number of queenless colonies and drone laying queens among the colonies that had had queens introduced so late. The drone layers may have been the fault of the queen breeder, but I had to admit to myself that I was wrong on the subject of late introducing; and another cherished theory had to be given up.

Since then I have experimented somewhat with the tobacco smoke method, but not always with success; the percentage of loss being considerably greater than by the caging method.

The method, which I have used with excellent success for several seasons, is as follows: Take a stick about ¼ of an inch thick, ¾ of an inch wide, and four or five inches long. Wrap once around one end of this a strip of tin or heavy paper, at least 1½ inches wide. Over this wrap a strip of wire cloth three or four inches long. Secure this by twisting wire around it in two or three places. You have now a tube, oblong in cross

section, one end lined with tin, the rest of wire cloth alone. Fill the tin part with Scholz or "Good" candy, ramming it down solidly. Fit a wooden plug to the other end. Put the queen into this cage alone. This I consider important.

The size and shape of this cage make it easy to put it almost anywhere in a bee-hive without disturbing its interior arrangements. I generally put it between the top bars of frames of brood in the lower section of a Heddon hive, which brings it into the center of the brood nest, but it may be laid on top of the frames, or shoved into the hive through the entrance, in an emergency.

Now let the colony alone for four or five days at least. You can delay or hasten the release of the queen by making the tube of candy longer or shorter. If you wish, you can lengthen the time required to eat out the candy by covering the end with pasteboard, but I consider this too uncertain in its results to be recommended.

RIVERSIDE, CAL., Sept. 25, 1901.

[Friend Green, your experience is interesting, but it would have been much more conclusive if you had known, positively, that the queens were fertile, laying queens when you tried to introduce them. The fact that some of them turned out drone layers in the spring seems to indicate that at least some of them were virgin queens. The man so lacking in honor that he made you wait for your pay until you were glad to take queens late in the fall, may have had the same failing when he filled the order.—Ed. Review.]



S LOCALITY OF THE MOST IMPORTANCE? PREPARATIONS FOR WINTER. BY C. S. DOWNER.

There seems to be a general impression that location makes most of the difference between success and failure. In a great measure this is true. It makes a difference whether your bees can gather honey two weeks or two months. Or whether you have a winter of a few weeks, or from five to seven months, to provide against. But location may not be the chief question in *every* instance. There are several points to consider in weighing the advantages of any field.

1.—The sources of honey. It is of the first importance to know where your bees will find sweets to gather; also the time to expect it. 2.—Distance from market, and cost of transportation. Consider whether you must pay freight 100, or 1000, miles on your product; as well as on supplies. Or whether you are near a shipping point, or must haul your honev by wagon ten or twenty miles to the railroad. 3.—The home-market. If you can sell your honey at home you save the cost of shipping-packages, transportation, commission, etc. 4.—Prospect of having a clear field. A location which gives an average yield, but is not crowded with bees, is preferable to one that may give a heavy flow but is already overstocked. In nine cases out of ten the apiarist will be wise to make the most of the location he is in, rather than remove to a distant one at great expense, even though it be a favored section. There are few of the choice localities which are not well stocked with bees; especially if near transportation lines and well known.

In regard to hives: get the catalogs, study them, read of the experience of others, compare their location with your own, and you will be able to decide for yourself what hive is best suited to your own purpose. And you will have the best success with the hive you prefer. Some of the most successful bee-keepers are using a shallow brood chamber which allows of manipulation and tiering up.

For winter, build of rough lumber a long bee house facing south, and line it with clean paper to make it wind-proof. Set your hives along the south side, also facing south. Never face a hive any

other way but south or east. Make a door the full length of the building, of a 12-inch board, hinged to open at will, to let the sun shine on the entrances of all Put on each hive a rim eight the hives. inches deep; lay four or five sticks, half an inch square, on top of the frames. Over these lay one or two pieces of sheeting or similar material, large enough to reach to the outside of the hive. Place on this a cushion, six inches thick, filled with fine shavings, excelsior, chaff, or any porous material which will not pack hard. If the cushion does not fit tight in the rim, fill up with same material, but leave an inch or more space between the cushion and cover. The object of the porous cover is to let the moisture from the bees pass off, but retain the heat. It is of the utmost importance to have the sun shine on the entrance, or they will not fly, even though the day be mild. Leave them in the bee-house until warm weather, opening the horizontal door on warm days, closing tightly at night, and your bees are protected from cold winds and storms.

In producing comb honey, caging the queen in a rim over the super to start work in the sections is one of the very best methods, but the cage should be constructed in such a manner as to allow the bees free communication with the If you shut her into a wire cloth cage they will proceed about the same as if she were entirely removed. Make your cage of Tinker-zinc, large enough to hold a supply of food. they can communicate with her freely they do not realize that she is caged at all. Release her in twelve or fourteen days, place a frame or two filled with foundation in the center of the brood chamber, and she will fill it with eggs as fast as the bees draw it out.

Study carefully your own location, and apply the knowledge gained from the experience of others, and you will have the best chance for success.

South Haven, Mich., Aug. 28, 1901.



OMMENTS UPON SOME CRITICISMS. BY FREDERICK B. SIMPSON.

Before perusing the following article, the reader should turn over to the Extracted Department and read Mr. Doolittle's article on page 312, as this article is practically a reply to the Doolittle article—to understand this article, Mr. Doolittle's should be read first—Ed. Review.

As it becomes necessary for me to answer some of the comments on my



former articles, I will discontinue the publication of my ideas on selection, until such time as my critics give me an opportunity; and, as I feel that any merit which may grow out

of what I have written, will be due to the arguments brought forth from others, rather than to any intrinsic merit of my own writings, I trust the opportunity will not come too soon.

Since writing the following answer to Mr. Doolittle's article, the editor has informed me that the article in question will be reproduced in this number, so I have omitted the bulk of the quotations and revised the matter accordingly.

About that 10,000 acre forest (I wish Mr. D. would let me have the plains or a prairie; I think the horses would do better). I, of course, can not speak for other breeders of horses, but as for myself, if I could breed horses, test them, select them and weed out the culls, and, above all, judge them by their produce, and if there would occur in the mating of horses the same amount of "natural selection" of the male as, according to the well nigh unanimous opinion of authorities (which Mr.D. entirely neglects mentioning), there occurs in bees, if in short, we could produce, select and test horses in the same numbers and at the same expense as bees, I can assure

Mr. Doolittle that I would very cheerfully allow Nature to select the individual male; but I would require the pedigree on both sides of every female from which I reared either males or females And the bee breeder must likewise know the pedigree of every queen mother; and, at least, of the mother of the drones with which his queens will probably mate. It is a principle of biology that in absolutely normal, natural conditions, a queen will mate with that drone for which she has the greatest affinity; that the greatest affinity will exist between the most unlike (within the species); and authorities practically agree that mating takes place in such a manner that the weaklings and unfit will be distanced; therefore, I entirely agree that inbreeding to a harmful extent cannot take place under absolutely normal conditions. But I do not believe that "under the present state of affairs there cannot well be inbreeding with our bees" Nature is not always absolutely normal; nor are bees reared by man always so; doubtless the above statement is true for Borodino and thousands of other places, but why should an authority of Mr. Doolittle's renown take so narrow a view of the suject? Am I mistaken in my belief that there are bee-keepers so located that they have the only Italians within mating distance of their apiary; and if they rear queens and "select" them for color and continue to do so for years, is it not reasonable to suppose that some queens will either mate with their x - brothers, or else with drones that are sons of daughters of these xbrothers; and if this continues is there any reason why the stock so selected will not eventually become so decidedly inbred as to have materially degenerated in fertility, vigor and size? This being the case, and in view of the many unqualified recommendations in the beejournals to inbreed, is not a warning on this subject a timely one?

"Suppose that any queen could possibly mate with her own brother, Does not Mr. S. know that it would only be her mating with her half brother?" No: Mr. S. does not know that; nor does Mr. D.; for if he did he would not attempt to prove it untrue on pages 73 and 74 of "Scientific Queen Rearing" (2nd. Ed.) Mr. S. is ignorant on this subject, but he agrees in the main with the pages above mentioned, and objects to the half-brother contention. If drones produced subsequent to mating are affected by that mating, the drone which did the mating must become their father to a certain extent, as it is not clear how he can have any influence on the queen's offspring except in the capacity of parent. designation is not strictly accurate, but as nearly so as possible without becoming too technical. I do not know what influence this will be, and, therefore, as x is the usual mathematical term to apply to a single unknown quantity, I will call the relationship x - brother. But if no other article indicated that there is some need of knowledge of inbreeding, Mr. Doolittle's does; as he appears to think it necessary to mate brother and sister in order to get bad effects. Ill effects can come from more remote inbreeding in the domestic animals, and it is well known that among people the marriage of cousins is usually followed by bad results.

I am fully convinced from my own experiments and observations that the big tent will not do, simply because while results would be valuable they could not be sufficiently so to compensate anyone for building the enclosure large enough, first, to satisfy the drones, and, second, of such size as to get the benefit of all possible natural selection under practically normal conditions. I feel certain that the system which follows would give a sufficient percentage of good results so that the expense would be far less per queen than a tent big enough to accomplish the same in all cases.

Now, as to its being useless to talk about the mother of the drone with which a queen mates, let us see how useless it

As I have said before, if I went into queen breeding as a life work I would so locate that I could control the flight of all drones having any large amount of Italian blood. But if I was already in the queen business and situated at Borodino, or in any similar locality in this respect, I would make an effort to get a dozen or more queen breeders to combine with me, and each send a best breeder and sufficient nuclei to some locality where there were no bees possessing Italian blood, and to there employ a man to rear queens from each breeder and drones from just one additional one, and by great care in keeping a large number of drones on hand, and keeping them in a vigorous condition (very likely they could be kept in more vigorous condition than the wild bees if fed and if queens were reared by the aid of feeding between honey-flows), allowing no drones to fly until the queens of the first batch were nearly old enough to mate, and mailing queens to breeders as soon as laying commenced; we could very likely rear three queens for each nucleus before any native queen could produce hybrid drones old enough to mate with our queens; after which we would have to stop operations until we found another locality; because in order to be on the safe side it would be well to assume that drones from the same mother may vary in hybridity from nearly pure black to nearly pure Italian, in the same way that the color of workers vary. Of course this would result in many mismated queens, but from my own observations I feel certain that a sufficient quantity of purely mated ones could thus be obtained to fully compensate for the outlay; and is it not possible that those thus purely mated would represent a more perfect affinity and therefore a better combination of individuals than if the native drones were not present? Of course this would not control the mating of queens for sale generally, but it would seem a sufficient step in advance to justify the outlay. But like anything else that is of value, the pro-

portionate expense will be considerable, and the man who begrudges the mutilating of a comb, or the spoiling of a section box, in queen rearing must become more liberal before he can gain this benefit. Economy is excellent; I am an admirer of thrift; but the bee breeder who wishes to put himself on the same basis as breeders of other stock must show pedigrees and records, at least in the mothers of his queens and the mothers of the probable mates of those he and he cannot expect to do this without more outlay than if he does not The public will not raise the price of queens in order to pay in advance for this benefit; the queen breeder must first put forth the effort, and, if successful, will it not naturally follow that he can create a demand for "bred" queens, and also get a price which will compensate him for the extra effort?

I am working on several systems of mating that give me hopes of success, but it will take hundreds of experiments to determine the exact factors. But as to Mr. D's \$500. That would not buy any of my plans if I should succeed, so in such an event I would ask the gentleman to hand his money over to the N. B. A. For I believe that in this respect beekeeping is a profession, and as I have no liking for quackery, anything that I can find out to help the bee-keeper will be given to the public at the earliest date that I can prove it practicable and safe by a sufficient number of results.

Contrary to the impression Mr. D. seems to have, I have not commenced to write for the bee journals practically unprepared. My opportunity for bee-keeping began but recently, but my technical knowledge of the anatomy, life history, biology and kindred studies relating to the subject, have taken me some sixteen years to acquire; although be it known that I do not say it in a bragging way, for I do not consider it any feather in my cap that it has taken me so long to learn so little.

I will not quote from my article considered valueless by Mr. Doolittle, as in

that cotribution itself I was careful to clearly state the limitations of the case; nor will I consider the fact that Mr. Doolittle's criticism might be construed as being given in a spirit of personal retaliation on account of my correcting (not criticising) his figures, in the same way as you would correct a person for making an error of fact by saying "the sum of two and two is three." Neither will I make personal allusion to the suggestion of the value of the writings of another contributor who agrees with me that biology can be helpful to the bee - keeper; the readers do not want personalities; it is not who says it, but what they say. But when a man reaches the point where he is an acknowledged authority, with that distinction there is a responsibility and a duty towards those who think a thing is right because he says it, and he should so carefully prepare what he writes that it will be apparent that he says what he does because it is right. I am now referring to the fact that the editor of a bee-journal entitled the "Progressive" has delivered himself of the following:

"I wish to say that his, "whereas the real cause of quality is skillful selection," and, "which qualities should be proved to be hereditary in each pedigree," as given in his "inbreeding article, are equally of little value, as applied to bees. And all the illustrations which have been given in the bee-papers during the last 30 years, no matter by whom given, as comparing the breeding of horses, cattle, sheep, poultry, or swine, with that of breeding queen-bees, have been equally valueless, for there is no common ground (on which to stand) between them.

As to what has appeared in journals, I will leave that to those who are better acquainted with contemporary bee journalism during the past thirty years, as it is a very grave reflection on the editors of the bee journals if they have published so much useless material (including the editors of the two journals who published my inbreeding article entire.) Why does the writer of the above "hand pick" drones? Why does he choose

them from "my best breeder not nearly akin to the queen mother"? On what grounds does he base the idea that the drone is the stronger element and has greater influence than the queen? at present impossible to know these things from the bees themselves; and does it not look reasonable to believe that the writer knows from the breeding of other animals that it is best to use good individuals and not to inbreed closely? And as to the drone having more influence, I wonder if that is not a relic of the days when the farmer-horseman gave the name of the sire of his horse and neglected the breeding of the dam entirely, thinking her of comparatively little importance?

Now why are there not more intelligent people making intelligent experiments in apiculture than there are? I do not knew; but I do know that when a man who is among the highest authorities on practical, economic beekeeping so belittles himself as to reject aid from any source except that in his own line of study and teaching, he is doing a great deal to keep out of bee-keeping those who are especially fitted to aid in making the future advance in beedom more rapid than the past. The progress that has been made in practical, economic beekeeping has undoubtedly been great, and to those who have made it so, all honor is due; it is a grand thing that men can keep bees so cheaply as to make a living from them, it is no less great that queens can be so cheaply reared that a poor man can afford to own good ones. But the fact remains that the breeding of bees has not advanced in proportion to the other elements of bee-keeping, nor will it ever do so if it depends upon knowledge obtained from bees alone without any outside aid. Is it not true that those who have given us the most theoretical knowledge (and often practical also) have been fitted by special training in some vocation other than bee-keeping? not say this to the discredit of the practical man, often of great experience; beekeeping and bee breeding will continue to advance if left to him alone, but is he taking advantage of all his best opportunities unless he permits the aid of those who know a little about the application of biology to the breeding of the domestic animals?

Mr. Adrian Getaz, in the Sept. Review, after pointing out what he considers a great error on my part, states "I do not see that the lengthening of the tongues of the workers through their own efforts could have any effect on the eggs of the queen, or the bees born from them." the absence of any proof, I can only give my opinion on this subject. all other animals, are undoubtedly affected by climatic conditions and by environment, and in the course of time they can undoubtedly vary through the influence of these causes. If the eggs of the queen and the larvæ from them are not influenced by the workers, we must then conclude that the only way in which climate and environment can effect the race will be through the queen at swarming and at mating time, and through the drone. might seem plausible in case of the drone, but in the case of the queen it would seem hardly possible during so short a time.

It would also be hard to reconcile the swarming as well as the superseding impulse with this idea, as it seems improbable that they originate in the queen. Then, too, in all the higher orders of animals, the male and female usually have an influence nearly equal upon their I know that it is usually thought that the male has the greater, but I can cite many cases in horses where the dam had far the greater influence; and I think it safe to conclude that it will average very nearly equal and will vary each way in individual cases. feel certain that the workers must influence the eggs as well as the brood, but as to how it is done I cannot say, as I don't know. But if we take an egg capable of producing a worker which can by her own efforts lengthen her tongue, and instead, allow this egg to produce a queen, is it not likely that this queen's eggs will have a tendency to possess the same capability of producing the same kind of a worker as she would have been? It might be possible that a bee which would later become very long tongued might show some tendency towards it while a nurse, which would possibly influence both the feed for the larvæ and that of the queen. As I have said above, I do not pretend to know how this is done, but give these ideas in the hope that others will be on the lookout for any light on the subject.

CUBA, N. Y., Sept. 16, 1901.



WORKERS MAY EXERT UPON THE QUEENS THEY REAR. BY J. W. JACKSON.

A writer in the September, 1901, number of the Review, on page 271, says:—

"Mr. F. B. Simpson made a big, big slip in his contribution on long tongues. He says: 'And if they (the bees) work it (the red clover) and reach all they can, it will uudoubtedly increase their tongue length to some extent; and if this continues progressively for several generations, we will get naturally long tongues.' This means that if some bees (workers) lengthened their tongues through their efforts to reach the nectar in red clover, we may expect that their daughters or the next generation will have longer tongues, and so on. The misfortune is that the bees of the second generation are not the daughters of the bees (workers) of the first. They are the daughters of the queen. And I do not see that the lengthening of the tongues of the workers through their own efforts could have any effect on the eggs of the queen, or the bees born from them."

Here is matter for consideration. "There is more in heaven and earth, Horatio, than is dreamed of in your philosophy." I have read somewhere (the expression of the experience of some veteran bee-

keeper) that the nature of the queen was affected by the nature of the bees with which she associated, and last year I had a colony of bees that were excellent workers, and the queen was quite prolific but the bees were very vicious; so I killed the queen, and raised one in that hive from the eggs of a very mild queen. The progeny of the queen raised by a vicious colony from an egg taken from a docile one, while not as fierce as the bees that raised her, are much more so than any others from her mother or sisters.

While the worker bees are not the mothers of the bees of the following queen, they are generally the sexually undeveloped sisters of their mother, and if such bees are not affected by their aunts' habits, so to speak, through their mother's relationship to them, I can see very little in the laws of breeding, especially bee-breeding, where man seems to be able to control only the female side; and the drones seem to have no tonguereach at all; for they make no honey. Which side, then, do they take after, the drone or the queen, the father or the Neither have tongue-reach, mother? neither make honey. Drones have no stings, queens do not use them on human beings. Neither the father, nor the mother of the worker bees build comb, where then do the latter get that instinct? In breeding bees, it will probably be well to believe that the habits of the workers affect, to some extent, the nature of the queen raised by them.

OPELONSAS, LA., Sept. 23, 1901.



OME LABEL POINTERS. BY JOHN H. RISING.

For several years I have been studying and revolving in my mind, various ideas in regard to properly labeling our various products. At the beginning, allow me to say that I have seen no label that to my mind properly fills the bill. Some labels

have too much, others to little, while many more are worse than none at ail. I am inclined to the belief that our goods, properly put up, do not need any unusual amount of bright colors to attract attention. Canned goods, such as peas, beans, apples, etc., in tin cans, are more attractive in bright colors. I was strikingly impressed with this idea on comparing American and Spanish goods in Cuba.

Nicely cased comb honey, the better grades of extracted in glass, do not need as showy or large labels as poorer grades of extracted in pails. People can see for themselves and will pay little attention to labels.

For the very reason mentioned above, I would *not* give any information as to the honey industry. People care little for our *business*. We must tickle their palates—there is where our business ability comes in.

If I were going into the label business heavily, and had a neat and attractive apiary, I would have a good cut of the same on my label. That would interest people. Catch and hold the people's eye. That is what we are after. Therein lies our returns. Colors must be determined upon after we have decided on the label. Red and black are about the most attractive and lasting.

As to size of label, that is a point to be determined, each for himself, and according to circumstances as well as utility.

GASKILL, N. Y., July 30, 1901.



CEMENT coated nails ought not to be used for nailing on the thin covers of shipping cases of comb honev. If they are used, they ought to be much smaller in size. As generally used, the cover is split all to pieces in being removed.

THE OFFICERS elected at the Buffalo convention are as follows: President. W. Z. Hutchinson, Flint, Mich.; Vice President, O. L. Hershiser, Buffalo, N. Y.; Secretary, Dr. A. B. Mason, Toledo, Ohio,

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GASOLINE, so says Mr. J. B. Rapp, in Gleanings, may be used instead of bisulphide of carbon for killing the bee moth's larvae. He puts the combs into a box or a barrel, pours in a pint or so of gasoline, closes it up tight for 24 of 36 hours, and the work is done. He thinks it kills the eggs as well as the larvae.

Convention Goers should, before leaving home, make a note of the exact place at which the meeting is to be held—note down the street and number on a card and put it in their pocket. Several at the Buffalo convention had neglected this point, and spent several hours in a vexatious search before they finally found the convention hall.

CONGRATULATIONS ought to have been extended long ago to Bro. York and his readers because he has dropped that "clipt" system of spelling. A phonetic system of spelling would undoubtedly be a great achievement, but such is utterly impossible without a radical change, without increasing the letters of the alphabet until there is a letter for each sound, and, until that is done, any attempt at changing our spelling will simply result in making confusion worse confounded. Once more Bro. York, congratulations.

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BEET AND CANE SUGAR are one and the same thing; at least, so says Mr. Melvin R. Gilmore, Superintendent of the American Beet Sugar Association at the Pan American Exposition. I had a long talk with him, and he told me that they are not only chemically the same, but they have the same physical characteristics. Cane sugar is called cane sugar

because it was first discovered in the cane sugar plant, but the same substance is found in several different plants. I mention this because we often see cautions in the journals not to use beet sugar for feeding bees—that it is detrimental to them.

"THE REVIEW has a freedom about it that is very delightful. After reading an issue I feel just as though I had sat down and had a real good visit with you." This is what a subscriber told me while I was away on my trip to the Buffalo convention. That is one of the things for which I labor—to make my readers feel, after reading a copy of the Review, that we have been having "a real good visit." Of course, the primary object of the Review is to teach, encourage and help bee-keepers; if, at the same time, it can win the friendship, yes, more than that, the love of its readers, I shall feel that it is a grand thing.

MR. O. L. HERSHISER showed me, at the Pan American, a new style of glass jar that he had just gotten up for putting honey on the market. It is of flint glass, and square, like the Muth jar, but instead of being closed with a cork it has a screw cap after the style of the Mason fruit jar. There is a cork lining inside the top of the cap which makes the whole thing self-sealing. The cost is only a trifle more than for corks, tin foil caps and waxing, and, considering the lessening in labor, is really about as cheap. Mr. Hershiser is making arrangements to have this style of jar put upon the market.

KKKK PARANA

THE DIRECTORS (six of them) at the Buffalo convention put in one whole day, the afternoon of one day and forenoon of the next, in discussing some of the knotty questions regarding the management of the National Association. The Association has been growing in numbers of late. Its membership is now nearing the 1,000-mark, and there are several hundreds of dollars in the treas-

ury. It is spreading out, so to speak, and new features, new responsibilities and new dangers are arising. These must be met and considered. This meeting took Bro. Root and myself away from what was probably the very best part of the convention. Our time was probably well spent, but it is likely that we missed many good things that we would otherwise have noted down and published in our journals.

DISINFECTING HIVES IN WHICH THERE HAS BEEN FOUL BROOD.

At Buffalo there was quite a discussion as to whether it was necessary to disinfect the hives when treating colonies infected with foul brood. Mr. McEvoy said there was no more necessity of boiling the hives than for boiling the beesnot so much, as the latter are constantly running over the combs containing the disease. Several thought that if any infected honey should become daubed upon the hives when shaking off the bees, it might cause trouble, but Mr. McEvoy showed that it would all be cleaned up by the bees, and, together with what other honey that was in there sacs, would be stored in the comb that was built during four days, at the end of which time the comb is all cut out and removed, thus getting entirely rid of the diseased honey.

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THE KEYSTONE Co. of Philadelphia, that had an advertisement in the last Review, is probably not a reliable firm. Mr. Reeves of New Jersey wrote me that he called at the supposed place of business, and found it unoccupied. The last occupant was a man by the name of Powers. The most dilligent inquiry failed to locate the Keystone Co. I wrote to the Philadelphia postmaster. He wrote that the firm was not now located at its former place of business. It had gone elsewhere and left an address to which to have mail forwarded, but the law did not allow him to give out this address. If I had been defrauded I could report to the Inspectors of the postoffice department. I had had correspondence with this firm several times during the past year; the best of reference was given, and I never suspected that this firm was not reliable. Where I failed was in not writing to the reference given.

A KA KA PANDANA

THE STEREOPTICON VIEWS given one evening at the Buffalo convention were an agreeable break in the steady "grind" of heavy discussion. E. R. Root, by means of his pictures and his talk, practically took us with him over the great West, and showed us wherein it differs, apiculturally, from the East. Your humble servant illustrated and described some of the apiaries and implements of which he took photographs in his recent Canadian trip.

By the way, these Canadian slides were made by a friend and fellow townsman of mine, the Rev. J. G. Haigh, who is an amateur photographer and slide maker. Although an amateur he is by no means a novice. He uses the best of materials, and his work in the line of slide making is the equal of that of professional slide makers—superior to that of some of them. When E. R. Root looked over the slides that I brought, he said: "There are few slides in my collection the equal of these." Any one wishing slides made will find it to their advantage to correspond with Mr. Haigh. His address is Grand Traverse St., Flint, Mich.

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PRIORITY OF LOCATION is something that was discussed quite a little, years ago, in the bee journals—how could a man secure the right to a certain location, and prevent some other man from coming in with another apiary, and thus take away one-half of the nectar. E. R. Root found this question being settled quite satisfactorily out West. The West, in many places, is a country of ranches. One man, or a stock company, owns a ranch that may contain several square

miles. The owners of ranches are willing to sell, at very reasonable prices, the privilege of keeping bees on their territory. The owners get money for something that they never before received any pay. It seems to them almost like finding money. Sometimes a man can lease a range for \$25 a year; and get a contract for ten years. Sometimes there is competition, and as much as \$50 per mile has been paid for one season. To buy up a bee range here in the East would be well nigh impossible, as the bee-keeper would have fifty or one hundred farmers to deal with; and if one of them stood out and would not sell, the whole thing would be a failure; as this one farmer might put out an apiary, or allow a friend to do so, or finally decide to sell to some one else.

PROGRESSION should be the watchword in any kind of business. are not going ahead it is quite likely that we are going backwards. Bee-keeping is no exception. I fear that some of us do not realize that bee-keeping as a business, as a specialty, is of comparatively recent origin. Naturally, a large portion of the energies of beekeepers have been turned towards the learning of "how to do things." These matters of manipulation, artificial swarming, hiving of swarms, extracting, securing of comb honey, wintering, etc., have occupied the pages of the journals almost to the exclusion of anything else. They probably will always be fit subjects for discussion; but we have now reached a stage where we ought to reach out; to take broader views. The Review has urged upon specialists the importance of keeping more bees; now it is investigating the subject of breeding, in its relation to bees. This is a field that has been greatly neglected. We know that there is a great difference in the different strains of bees. learn, if we can, how these differences were brought about; how they can be prepetuated. If there is any way whereby we can improve the quality of our bees, let us know it. If there is not, let us know that; and turn our energies in some other direction. Those readers who have been accustomed to read bee journals only for instructions "how to do things," must try and be patient if some pages of the Review are devoted to arguing some of the fine points in breeding. Good may come from it.

BEESWAX PRODUCTION is something that Harry Howe of Cuba thinks might be engaged in at a profit in Cuba. writes to Gleanings that the net price of honey in Cuba is only 1 4-5 cents, while beeswax is worth 27 cents. No wonder that he thinks of turning honey into wax. Many have been the experiments, and diversified have been the results, in trying to decide how many pounds of honey are consumed in the secretion of a pound of wax. The amount of honey that may be consumed in the production of a pound of wax when bees are at work, normally, storing honey, and the amount that would be consumed if they were confined and fed honey, would probably vary greatly. This a subject upon which some experiments are badly needed. know that when bees are fed they become "fat," so to speak, and secrete large quantities of wax. If given no opportunity to build comb they plaster the bits of wax all over the inside of the feeder, on the top bars of the hive, on the wood of the sections, and anywhere they can get a chance. One trouble in feeding bees honey to have them work it up into wax, would be that brood rearing would be largely increased. It would probably be necessary to confine the queen to a certain portion of the hive in order to prevent the rearing of too much brood. If there were a demand for bees, or a use for them after they were reared, it might be all right to let the queen have full sway. I should dearly love to experiment along this line. To me there was always a fascination about the feeding of bees.

A PAN AMERICAN NUMBER is something that several magazines and periodicals have gotten out. Perhaps the next issue of the Review will attain to that It certainly will aim to distinction. show up the apiarian part of the Exposition as well as it is possible to do with camera and pen. While at the Exposition I made a photograph of the Canadian exhibit, two of the New York exhibit, one showing the apiary where the bees work out through one of the big upper windows, another showing the product of one colony in this apiary, also one of the W. T. Falconer Mfg, Company's display of supplies. and another showing that of the A. I. Root Co. Mr. O. L. Hershiser, Superintendent of the New York exhibit, will furnish the "writeup."

ADVERTISEMENTS in the reading colunins is something of which I do not approve, but, under the present conditions, I am going break over my custom in this respect. Some two months ago the breeder who furnishes me the Superior Stock queens withdrew his own advertisements that he might catch up with orders and fill those of mine that were waiting. He had nearly caught up with orders, and was ready to fill those of mine that had been waiting, when a cool spell of weather led a large share of my customers to either cancel their orders, or ask me to wait about filling them until next spring. I wrote to my breeder, explaining the circumstances, and he replied that while he did not blame me any, nor my customers, he was sorry things had taken the turn that they had. He writes that from now on, to the close of the season, he can furnish queens that are especially valuable, in that they were reared during a good flow of honey, and fertilized at a time when only select drones were flying. He says that last year he mailed queens up to the first of December with the best of success. Safe arrival is guaranteed. If any of my customers who have canceled their orders,

or any who have put them over until next spring, or if there are any new customers who wish to order queens now, I shall be glad to hear from them. Oueens can be sent at once. I give this notice here, not so much for any gain that will come to me, but to try and help out a man who gave up his own retail trade to try and help me out, and who now has queens on hand as the result. I would have put this in the advertising columns, but when his letter came the advertising pages for this month were already printed; and next month would be too late to do any good.

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FINDING THE QUEEN how many ways there are of doing it. Here is the latest as described to me in a letter from Mr. Henry E. Horn, of Riverside, California. He says: "Blow some smoke into the entrance to alarm the colony. Two or three puffs will be sufficient. Take off the cover and watch the behavior of the bees. Those at a distance from the queen will come up between the frames and walk across the top bars. Keep close watch. Finally, at a given point, a dozen or two will stop and sort o' smell down between two certain frames. two frames are taken out together, the queen will be about the first thing seen when they are separated. This method never fails with me; but some little experience is necessary in order to catch on to the trick. If I had to manipulate hiving-boxes, screws, supers, and things, I'm afraid that I should seldom make the acquaintance of my queens."

Nominations in advance of the election of a General Manager, and the Directors of the National Bee-Keepers' Association, would be very desirable. As it is now, when a member receives a voting-blank, he does not know for whom any other member will vote. In his desperation, he votes for the man whose term of office is about to expire. As a result, each officer succeeds himself, year after

year. Should it ever become desirable to elect a new man, it would be well-nigh impossible with the present system. This question was discussed by the Directors present at Buffalo, but they were unable to devise a plan that seemed wholly satisfactory, and it was finally decided to have the matter taken up in the bee journals for discussion. Suggestions from the readers of the Review will be welcomed.

The foregoing was sent to E. R. Root, one of the Directors, for his criticisms, or suggestions. He considered it brief and to the point, and passed it on to Bro. Abbott, who is chairman of the Board of Directors. He penciled on the back of the sheet the following: "While it is desirable to keep the same parties in office as long as they attend to business, and give satisfaction, yet it is important not to have too many Directors in one locality, and to place in office men who will attend the annual meeting as often as possible."

The suggestion that we put in Directors and a General Manager who will attend the annual conventions as often as possible, is worthy of consideration. At the Buffalo convention, six of the Directors were present (one more would have given us a quorum) and we did more business than could have been transacted in weeks or months of correspondence. There is nothing like a face to face discussion of a knotty question. Other things being equal, we should give our preference to those men who are usually present at the annual convention.

SUPPLY AND DEMAND are the two great factors that control prices. When I was over in Canada last summer, I noticed that the prices of comb and extracted honey were nearly alike. It seemed to me that there was not enough difference between them. Extracted honey was selling at from 8 to 10 cts, while comb honey was bringing only a shilling. But very little comb honey was being produced. There was no inducement. In talking with some of the

Canadian visitors at the Buffalo convention I found that the price of comb honey had been fairly booming this fall-it is now about 23 cents. It was ever thus. When prices go down, production is lessened; when they go up it is increased. Then there is always a reaction. prices go down and production is lessened, the scarcity that results always brings up the price again. If prices go up as the result of scarcity, production is increased until they are again brought back. Thus, all things seek a level. When the price of anything goes away above what it usually is, we may, as a rule, look for it to drop back again, and probably go below par. I had an uncle who was a farmer, and when any farm product was unusually high, he dropped its production the next year. He said that everybody would go into its production and the price would go down. Then, again, if potatoes, for instance, were very low, he would, the next year, put in a large acreage. Nine times out of ten, he would hit it. While I am not much given to trying to strike the market in this way, I do believe that low prices ought not to discourage a man, and drive him out of some branch of business for which he and his surroundings are eminently fitted. If a man's locality, hives, fixtures, bees, experience taste and market are all fitted for the production of extracted honey, let him stick to it, even if prices do go down. By the time that he has changed everything over for comb honey, and learned how to produce it, the price for extracted may have again advanced. Do that for which you are the best fitted, all things considered, and prices, in a long term of years, will be remunerative.

MAN REPRESENT

FIVE DOLLARS A DAY RETAILING HONEY.

At the Buffalo convention, while S. A. Niver and myself dangled our legs from the top of a table, he told me how he managed to retail from 100 to 150 pounds

of extracted honey at 15 cts. a pound in It is done by peddling from house to house in some lage or small city. He carries square gallon cans honey in a push cart, such as grocers sometimes use in delivering goods. He says the flies don't bother the cart as they do a horse, and it never runs away; besides, it costs less. His sample of honey and a spoon are carried in a lard pail, having a cover. He raps at a door, and, to whoever answers his call he says: "I am giving away samples of honey. Will you have the kindness to bring me a saucer or a plate; also a spoon." To this request there is usually a willing response, while the query of "Don't you want to buy some honey?" would send the questioner on his way with a "No, not to day." When the plate appears, two or three spoonfuls of honey are dipped out upon the plate; no one is allowed to lick the spoon carried by the peddler—that is used to dip out the samples, and for nothing else. People don't care to eat honey dipped out with a spoon that has been stuck into the mouth of the general public. The amount of honey in the pail is kept at such a point that the spoon can be dropped back into the pail and the handle of the spoon will stick up above the honey and rest against the side of the pail. All these may seem like small points, but they all count. As the honey is dipped out upon the plate the prospective customer begins to taste of it; the children crowd around and beg for a taste, and then beg of their mother to "buy some." As a rule a sale is made. Some little platform scales are carried in the cart, and used in weighing the honey into the pails, pitchers or jars that are brought out to be filled. Just notice that with this plan the consumer furnishes the package. One sale often attracts the attention of a neighbor who comes over to see what is going on-result, another sale. The same ground is gone over repeatedly, at certain definite intervals, until customers come to look forward to the visits of the "honey man." Such honey as Mr. Niver can buy of Mr. Coggshall at 6½cts. a pound, is sold at 15 cents a pound, at the rate of from 100 to 150 pounds a day. Remember, however, that the man who does this bears the name of S. A. Niver—everyone is not thus equipped. In other words, Mr. Niver has few equals as a salesman.

EXTRACTED.

THE INFLUENCE OF THE DRONE.

In Mating with the Queen Does he Influence the Drone Progeny?

In his article in this department, Mr. Doolittle attempts to show that, under the existing conditions of things, there is no danger from the inbreeding of our bees. In speaking of the mating of a queen with a drone from the same mother as herself, he asks: "Does not Mr. Simpson know that it would be only her mating with her half-brother?" Mr. Simpson, in his contribution in this issue of the Review, calls attention to the fact that Mr. Doolittle gives, in his book, some very good reason showing why the drone does leave some effect even upon the drone progeny of the queen with which he mates. Here is what Mr. Doolittle has to say, in Scientific Queen Rearing, on this very interesting and important subject:-

One other item that I wish to notice at some length, before closing this chapter on drones, is this: From the fact that worker-bees can lay eggs that will hatch drones, and that virgin queens can also lay eggs which will also produce drones, the theory has obtained very largely among bee-keepers that the drones from a fertile queen must of necessity be of the same blood as they would have been had this queen produced drones before she was fertilized. In nearly every book written on bees, that I have read, where this subject is touched upon we find words to the effect that, "a pure queen, how-

ever mated, must produce a pure drone of her own variety." Mr. Alley's "Queen Rearing" is an exception to this, I am

happy to note.

Now I am not prepared to say how, nor wherein, the drones are changed by the mating of the queen; but this I do know, that drones are contaminated, to a certain extent, by the mating of a queen of one blood with a drone of another blood. Any one can prove this, for in four generations, by mating the queen each time to these pure (?) drones, a bee can be produced which no man can tell from a hybrid. That this contamination does not show in the first cross, is the reason, I believe, that the theory has been accepted, by nearly all, as the truth,

To illustrate: Take a pure black queen and after she has mated with a fine, yellow Italian drone, let her rear all of the drones produced in an apiary containing only black bees. Of course, the drones from this queen will all be black to look at, the same as they would have been had she mated with a drone of the same blood as herself. Now rear queens in this apiary, from any of the pure black mothers in it, and these young queens will mate with the drones from this mismated queen. These young queens will apparently produce all black workers and drones, the same as they would have done had these drones come from a pure black mother, mated with a pure black drone; but when we rear queens from these young mothers, now and then one will show a little yellow, which would not have been seen, had not the drones from this mismated queen been the least bit contaminated. To detect any slight contamination of blood in our bees, we must always look to the queen progeny, for the queen is the typical bee of the hive; hence they will show an impurity where the workers and drones would not.

Now, take one of these young virgin queens showing a little yellow, and have her mated with a pure yellow Italian drone—the same as was done with the first queen. From this one rear all of your drones again, while you rear queens from her mother, which young queens would be sisters to the one now producing drones. Having one of these last young queens fertilized by the desired drones, next rear queens from her, and you will find that some of these queens will show quite a little yellow on them; yet so far the drones and workers show little if any difference.

Take one of the yellowest queens from this last lot, and have her mated with a yellow drone again, going over the same process of mating as before, and you will get queens in this third generation which will (many of them) be quite yellow; while the workers and drones will show "yellow blood" about them by occasional

"splotches" of that color.

Now follow out the same line of breeding once more, and you will get both workers and drones, which any queenbreeder in the land will call hybrids—calling them rightly so, too. These hybrids could not possibly come about by this way of breeding, only as drones from a mismated queen are contaminated; for so far we have used no drones except those which were pure black, according to the parthenogenesis theory, yet we have a hybrid bee as the result.

Worker-bees and drones do not show a little variation of purity, as much as does the queen, hence if we would know of the stock which we have, we must rear queens from them. Failing to do this, we often decide that we have pure drones for breeding purposes, because these same

drones look all right.

If I have made this matter plain, and I think that I have, it will be seen how much value it would be to the scientific breeder of queens, if he could select just the drone he wanted, and then have a valuable virgin queen mated with that drone. In this way we could accomplish as much in securing the "coming bee," in two years, as we now accomplish in a life-time.

Let no one be longer deceived about pure drones from a mismated queen; for if such drones are allowed to fly in your yard you cannot expect any satisfactory degree of purity from queens reared therein. I have been forced to this conciusion by many careful conducted experiments, as already described.

SHALLOW FRAMES.

Some of Their Advantages in the Production of Comb Honey.

Considering the manner in which a great many tried to "down" the Heddon hive when it was first brought out, it is quite refreshing to find in Gleanings the editorial that I copy below. Very clearly, forcibly and ably does Bro. Root set forth some of the very arguments that were used in favor of the Heddon hive when it was first introduced, but were

tossed aside by many because—well, they came from "Heddon." Bro. Root says:—

The tendency among expert bee-keepers is toward a shallower frame than the standard Langstroth. Some others prefer the Laugstrotli because it has always given good results. But the other class consider that the frame given us by the father of American bee-keeping is a little too deep. They desire a frame just shallow enough so that there will be no honey or very little at least, stored in the brood-Said Mr. Vernon Burt, "With my shallow frames I often have no more honey in them than the size of a silver dollar; and I estimate that, if my colonies had all been in the shallow hive, I should have secured 30 lbs. more per colony." This is a strong statement, but Mr. Burt says he is ready to verify it by showing the piles of honey that have come off the shallow frames and the amounts that have come off the deeper ones. he does not claim the bees would store any more honey in one hive than in another, if we include both the super and the brood nest, yet he says that, instead of there being from 25 to 30 lbs. of honey left in the brood-nest, which he does not want there, that amount all goes into the supers where he does want it, and where he can command the very best market price obtainable. When I asked Mr. Burt if it was not desirable to have honey in the brood nest, he said it was not, ac-"I prefer," he cording to his practice. "to sell my honey, what I do get, at 12 and 15 cts., and then buy syrup at 3 or 4 cts.; and I not only make a good trade, but I give the bees a much better While good honey does very well most winters, yet there are occasional ones when the syrup-fed colonies come out much better. "No, sir," said he, very emphatically, "I do not want any honey in the brood-nest in late summer. I prefer to feed sugar syrup, for then I know my bees have the very best food for winter.'

Hive a swarm in two sections of the Heddon hive, having starters only in the frames. Three days later remove the lower section of the brood-nest. By this plan, if the swarm is hived on the old stand, the supers transferred from the old to the new hive, and the old hive set side of the new until the eighth day, then moved to a new location, the beekeeper, in this locality, will get all of the

white honey in the sections, the old hive will contain a colony that will be in firstclass condition for winter, while, by uniting two of the half-story colonies at the end of the season, and feeding, there will be another first-class colony for winter.

FERTILIZATION OF QUEENS.

Selection of the Drones; Inbreeding; a Reply to a Correction.

The Review is earnestly trying to help bee-keepers to improve their bees by better methods of breeding; for this reason, every scrap of information on the subject is worthy of consideration. That is one reason why I copy the following article from the American Bee Journal. Another reason is that it contains some criticisms by Mr. Doolittle on an article written by Mr. Simpson, and the Review wishes to be entirely fair—to give each side and everybody a hearing. Then again, as Mr. Simpson replies in this issue to the arguments contained in the following article, it is necessary to a full understanding of his arguments, that the following should be read in order to understand Mr. Simpson's reply. Mr. Doolittle wrote as follows:—

Frederick B. Simpson is one of the comparatively new writers for the beepapers, yet his articles are full of life and "spice." I have read them with much interest, and hope he will continue to write more and more, especially so as he may gain more and greater light on many of the vexatious problems with which apiarists have to deal. I judge from his writings that he is more thoroughly conversant with the vexatious problems relating to horses, than he is with those relating to bees. But if his life is spared he will doubtless learn all about many, if not all, of the bee-problems. And I bid him "Godspeed," that he may know of the height and depth, of the length and breadth, of this most fascinating, as well as often most vexatious, pursuit—beekeeping.

On page 485, I find these words from

his pen:

"In the American Bee Journal for June 20, Mr. Doolittle gave us some figures, but as he failed to notice that the mother of the drone with which a queen mates is entitled to probably the same share in the results [greater, in my opinion—G. M. D.] as the queen's mother, and also that the mother, or mothers, of the drones with which the breeding queen's daughters mate are also entitled to some share, his figures are of little value."

Just so. And even at the risk of appearing "sassy" I wish to say that his, "whereas the *real* cause of quality is skillful *selection*," and, "which qualities should be proved to be hereditary in each pedigree," as given in his "in-breeding" article, are equally of little value, as applied to bees. And all the illustrations which have been given in the bee-papers during the last 30 years, no matter by whom given, as comparing the breeding of horses, cattle, sheep, poultry, or swine, with that of breeding queen-bees, have been equally valueless, for there is no common ground (on which to stand) between them.

Suppose Mr. Simpson, with all of his horse knowledge, was obliged to turn his highly bred mare out into a 10,000 acre forest, filled with twice that many stallions of all grades, sizes and colors, she going way out of his sight and hearing before she met even a single one of them; of how much value does he think would be any words he could say about his "skillful selection," the "hereditary in each pedigree," or about the "mother of the stallion with which his mare mat-The fact is, the breeder of queenbees is "all at open sea" in this matter of the selection of drones, and all talk along the line of what drone any queen mates has no value attached to it whatever.

I have had a standing offer, out for years, of \$500 to the man or woman who would give me a practical plan whereby I could mate a queen-bee to any individual drone, with the same certainty that a horse-breeder could mate his stock. And I know of several other queen-breeders who would give from that to twice that Here is your chance Mr. S. And not only a chance to get the \$\$\$\$\$, but also to receive the heartfelt gratitude of thousands of bee-keepers of the present age, and those who are to come after us during the centuries yet to come. And, until this problem is worked out, it is useless to talk about "hereditary," "variations, how started, intensified, and established," or anything of the kind. And the "great big tent" plan, lately agitated, should it prove successful, would not at all meet the requirements of the Simpson horse-breeders, nor claim my \$500; for that would be like turning out the mare, in the supposed case, into a forest containing from 50 to 1000 stallions, with the simple guarantee that they were raised from *one* mother. Some would be weaklings along some or all lines, lacking of proper form, proportions, etc., and would be something that no careful stockbreeder would ever listen to, although it might be somewhat of an improvement over the first, or what we now have.

Those who have accused the present race of queen-breeders of simplicity, and lack of insight into matters which goes towards making a scientific breeder of other stock, have failed, in that they have not taken this mating question into consideration as they should. I know that there are queen-breeders of the present time who have put as much thought into it, and spent as much time to thoroughly equip themselves for their business, as any breeder of any of our domestic ani-And because they could not control the mating of their queens, is no sign why they should be classified with the ignoramuses in breeding domestic animals. This last is not thrown at Mr. Simpson, for he has treated the queen-breeders of the present very fairly, as far as I have

And now I wish to say a word about that "in-breeding" matter. The reason, Mr. Simpson, why "the regular contributors to the bee-papers have not shown any desire to give us any specific aid on this subject," is, because, under the present state of affairs, there can not well be any in-breeding with our bees. With thousands and millions of drones, from scores and hundreds of hives, within a circle of five to ten miles in diameter, all congregating together, as the stallions in the forest, there is very little chance that any queen could possibly mate with a drone from her own mother. But suppose she Does not Mr. S. know that it would be only her mating with a halfbrother? The drone is "the son of his mother," while the queen is the daughter of her mother and father. And as the drone is always, practically speaking the son of his mother, in-breeding could be carried on for several generations, even with a full control of both queen and drone, before we could practically mate a brother and sister. And with the present conditions of mating, and with no chance at all of having "our say in the matter," it is simply folly for bee-keepers to talk about in-breeding, or to say very much regarding the mating of their queens any way, as to what drone she mated with.

The very best I have been able to do on the drone-side, has been to keep a lot of drones from my best breeder, not near-

ly akin to the queen-mother, till fall, after other drones were killed off, then "hand-pick" them, culling out all the inferior ones, when I had some reasonable assurance that queens reared at this time would mate with some of these drones, providing that some other colony within the circuit of the flight of "drone and queen," did not have a failing queen, or was queenless, in which case there would probably be hundreds of drones from such a colony to where there were tens of my

hand picked specimens.

I spent much of the time during the later seventies and early eighties in trying plans for the control of fertilization, thinking them out nights and trying them days, besides nearly all the plans advised by others, and after having to write "A failure" after each experiment, I settled down to try to do the best I could from the queen side, which thing I have been doing ever since. But I am free to admit, with Mr. Simpson, that, if I could have had complete control over the drone which mated with any queen during all these years, there would have been more "value in the figures" than there is at present; although a yield per colony of from 60 to 80 pounds of comb honey from red clover this year, with little or nothing 20 years ago, proves that I have not labored entirely in vain.

OUEEN REARING NUCLEI.

What Size of Frame and Nucleus is Desirable.

Considerable attention is being given of late to the matter of getting queens fertilized in very small nuclei; so small in some instances that they must depend upon a full colony for their heat. On this point Dr. Miller advances, in Gleanings, some views that are worthy of consideration. He says:—

The greatest part of the cost of rearing a queen has been considered the time occupied in the nucleus to get her to laying; and, like others, I have made effort toward seeing how few bees might be successfully used in a nucleus. But is not the cost of nuclei magnified? If I am not mistaken, a colony with a virgin queen will work just as vigorously as one with a laying queen, and a field-bee will carry

just as much nectar to a nucleus as to a full colony. If that is correct, and if a cell is given at the time of removing a laying queen from a nucleus, then there will not be more than two days when the nucleus will not be in good storing condition, and when too much honey is in a nucleus a full frame can be exchanged for an empty one. Of course there will be some loss from the larger proportion of bees required to keep up the heat in a small nucleus. But I suspect that the gain from fewer bees in a nucleus is overrated.

The Doctor's views are all right for putting into practice during a good honey flow, provided the bee-keeper has bees enough to form all of the nuclei that he needs; but there are other conditions. Perhaps I can best illustrate by giving my own experience. In this latitude, but little can be done in queen rearing until the fore part of May. As a rule, I start my first batch of queen cells about May 7th. The nuclei are started the latter part of May. Not much honey comes in during May. There are willows, soft maples, elms, hard maples and dandelions, but there is seldom enough honey coming in, unless it is at fruit bloom, so that the bees will not rob if given an opportunity. The nuclei must be made strong enough so that they can defend themselves. They also need to be quite populous at this season of the year in order to prevent loss from chilled brood if there should come a cool spell. most of my queen rearing was done with the American frame, which is a foot square. I usually started my first nuclei in the spring by using three frames of bees, brood and honey. Trying to start with weak nuclei brings in too many losses from robbing and chilled brood. Better have fewer nuclei and no losses. The fore part of June brings warm weather and the flow from white clover. As Dr. Miller says, strong nuclei will now store a lot of honey. The flow from white clover is followed by that from basswood. From the first week in June to the middle of July, we have a flow of honey. It is then that we get our harvest if we get one at all. During this time, if a man has bees enough to form all of the strong nuclei that he needs, there is not much, if anything, gained by having weak instead of strong nuclei. A good, strong nucleus will store as much honey, in proportion to its strength, as any colony in the yard.

From the middle of July to the end of the season, bees seldom store much surplus in this locality. In rearing queens it often happens that the nuclei and cellbuilding colonies must be fed. It will readily be seen that under these conditions weak nuclei are an advantage. Numbers are not needed to secure heat, nor for the storing of surplus, as there is none to store. A nucleus strong enough to defend itself is strong enough, and does not require so much feed as a stronger one. The latter part of June I begin reducing the strength of my nuclei by division, thus increasing them in number. By the close of basswood I have them reduced to as weak a condition as it is safe to make them on account of robbers. I don't wish to establish or divide any nuclei after basswood closes, as such will not defend their hive as will those that have been established for some time.

Then there is another point: Suppose a man has a good demand for queens, but only a few bees from which to rear them, and there are reasons why he can not add to his stock of bees, in this case it will pay him to use as weak nuclei as possible.

The size of frame to use in queen rearing is quite important. A large frame or comb is used at a loss. In order to cover it, the bees must spread out very thinly. Take the large Quinby frame, for instance, a quart of bees could cover only a small space on each side. Three-fourths of the comb would not be used. The same amount of comb put into four combs would be quite nicely covered by the same number of bees. A small comb is certainly an advantage in queen rearing, but I am not yet convinced that it is an advantage to use something smaller than

a standard size. At the Pan American Mr. Frank Benton had on exhibition a nucleus hive in which the combs were one-third the size of the regular Langstroth comb. By means of pieces of folded tin that slipped into grooves in the edges of the frames, three frames could be fastened together, at the close of the season, thus making a regular Langstroth frame. Just after the Buffalo convention I visited Mr. Frederick Simpson, of Cuba, N. Y., and found him using nuclei in which there were four combs in each nucleus, and the combs were one-half the size of a Danzenbaker frame. There was an arrangement whereby these half-size frames could be stuck together and made into full-size frames. These small frames possess decided advantages in queen-rearing, especially so for forming nuclei early in the season, but, taking everything into consideration, the fussing of taking them apart, and the putting of them together, and the expense of odd sized hives, I am inclined to the belief that the advantages of these compound, adjustable frames are out weighed by the disadvantages. Mr. Alley makes a practical success of small frames, but he does not attempt to unite the nuclei into full colonies in the fall. He simply shakes off the bees upon the ground, and stores away the combs for use another season. This may seem like a wasteful proceeding, but it must be remembered that the bees in queen rearing nuclei, at the end of the season, are mostly old bees that would die of old age long before spring. destroy them in the fall and save the stores that they would consume before they died.

I have practiced keeping laying queens in small nuclei in which each nucleus was composed of three, pound sections. They answer very well for keeping queens on hand ready for shipment. A good queen will fill up the combs in a day, and soon the nucleus is ready to swarm out. The only way to overcome this difficulty is to cover the entrance with a small piece of queen-excluding zinc.

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Bee keepers should send for our

'01 CATALOG.

We furnish a full line of supplies at regular prices, Our specialty is Cook's Complete hive.

J. H. M COOK, 62 Cortland St., N. Y. City

Please mention the Review.

CARTONS.

There have come into our possession, in a roundabout way, 100,000 folding cartons for putting up pound sections for sale. We have five different widths for the $4\frac{1}{4} \times 4\frac{1}{4}$ sections. We would like to sell these cartons and get them into cash, and will put a price upon them that will enable bee-keepers to buy them and keep them over for another season if they have no use for them this year. We will sell 500 cartons for only \$2.50; or for \$4.00 we sell 1,000 cartons and print on the bee-keeper's address. Without the address we will sell 1,000 for only \$3.50.

Address all orders to H. G. QUIRIN,

4-01-6

(Parkertown is now a Money Order Office.)

Parkertown, Ohio.

Mr. Quirin has sent me a sample carton. It is certainly a good, strong, well made article; and where the market demands a carton, bee-keepers can not do better than to send an order to Mr. Quirin.—Ed. Review.

Please mention the Review.

LONGEVITY.

I have never made any great claim for the longevity of the Superior strain of bees that I am selling, but from the reports that I have been getting this year I am inclined to believe that this quality ought to be added to the other desirable traits that they possess. Here is a sample of the letters I get:

WARSAW, N. Y., Sep. 4, 1901.

Mr. W. Z. Hutchinson,

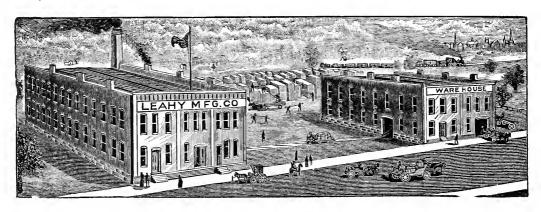
Dear Sir, I enclose \$2.00 for the Review and a queen. Three years ago I lost my breeding queen in the spring, and sent to you for one of your year-old queens. I did not expect to use her more than one season, but she proved so much better than I supposed she would, that I have kept on using her until I now have nearly my whole apiary requeened from your stock. I began last spring with 35 colonies; they increased to 75, and I shall have between 3,000 aud 4,000 pounds of honey—not bad for a village location where 250 colonies are kept; besides there being other apiaries near by. One of my neighbors is so well pleased with my bees that he offered to trade apiaries with me, giving me two colonies for one, but I declined. The bees of this queen that I got of you have been trying hard for the last two or three months to supersede her, but I keep the cells cut out, and shall try hard to carry her over into her fifth year!

Resp. yours, W. W. SHERWIN.

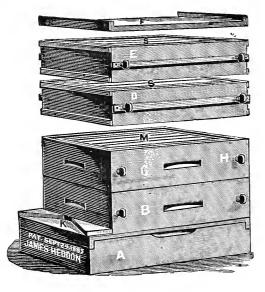
If you send in your order this fall, it will be booked, and will be among the first that will be filled in the spring. If you wait until spring before ordering, there may be 200 or 300 orders ahead of yours. The price of a queen alone is \$1.50; or I will send a queen and the Review one year for only \$2.00.

W. Z. HUTCHINSON, Flint, Mich.

Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a *daisy* now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can be worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bee-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., Higginsville, Mo.. East St. Louis, Ills. Omaha, Nebraska..

DADANT'S

Foundation

By the new **Weed Process** is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.



Our new 52-page Catalogue for 1901 is Ready. Send for a Copy; it is Free. We Manufacture the Finest

Bee-Keepers' Supplies

in the world.

G. B. LEWIS CO., Watertown, Wis., U.S.A.

Special Agency:— C. M. Scott Co., 1004 E. Washington St, Indianapolis, Ind.

Agencies:—
L. C. Woodman, Grand Rapids, Mich.
Fred Foulger & Sons, Ogden, Utah.
E. T. Abbott, St. Joseph, Mo.
Colorado Honey Producers' Assn.,

Denver, Colorado.

Sections

We make millions of them yearly; workmanship, smooth ness and finish can't be better. The basswood grows right here. If you want some good **Shipping Cases**, you can get them of us. A full line of **Bee Supplies** on hand.

Write for illustrated cata logue and price list free.

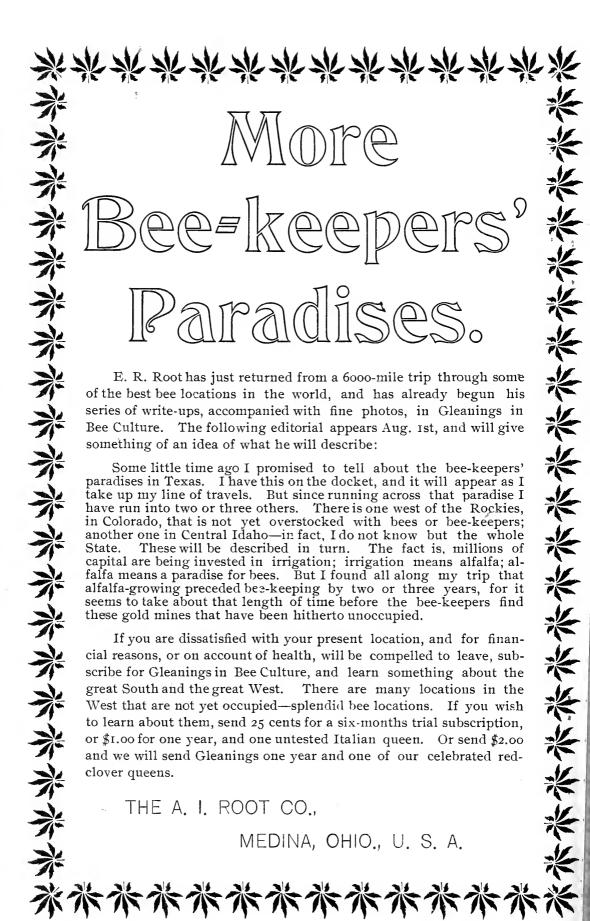
Marshfield
Mfg. Co., Marshfield, Wis.

Winter

Losses are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from improper protection; from a cold, wet, or possibly, a poorly ventilated cellar, ctc, etc. Successful wintering comes from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problems.

Price of the book; 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON, Flint, Mich.





Advertising Rates.

All advertisements will be inserted at the rate of 15 cents per line, Nonpareil space, each insertion: 12 lines of Nonpareil space make 1 inch. Discounts will be given as follows:

On 10 lines and upwards, 3 times, 5 per cent; 6 times, 15 per cent; 9 times, 25 per cent; 12 times, 35 per cent.

On 20 lines and upwards, 3 times. 10 per cent; 6 times, 20 per cent; 9 times, 30 per cent; 15 times,

On 30 lines and upwards, 3 times, 20 per cent; 6 times, 30 per cent; 9 times, 40 per cent; 12 times, 50 per cent.

Clubbing List.

I will send the Review with—	
Gleanings, (new) (\$1.00)	\$1.75
American Bee Journal (new) (1.00)	. 1.75
Canadian Bee Journal (1.00)	. 1.75
Progressive Bee Keeper (50)	. 1.35
American Bee Keeper (.50)	. 1.40
The Southland Queen(1.00)	. 1.75
Ohio Farmer (1.00)	. 1.75
Farm Journal (Phila.)	. 1.10
Rural New Yorker (1.00)	. 1.85
The Century (4.00)	. 4.50
Michigan Farmer (1.00)	. 1.65
Prairie Farmer (100)	. 1.75
American Agriculturist(1.00)	. 1.75
Country Gentleman	3.15
Harper's Magazine (4.00)	4,10
Harper's Weekly (400)	. 4.20
Youths' Companion (new) (1.75)	2.35
Cosmopolitan(1,00)	1.90
Success, (1.00)	1 75
,	10

Honey Quotations.

The following rules for grading honey were adopted by the North American Bee - Keepers' Association, at its Washington meeting, and, so far as possible, quotations are made according to these rules.

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," No. 1,, dark," etc.

The prices given in the following quotations are those at which the dealers sell to the grocers. From these prices must be deducted freight, cartage and commission—the balance being sent to the shipper. Commission is ten per cent; except that a few dealers charge only the per cent, when a shipment cells for so much five per cent. when a shipment sells for as much as one hundred dollars.

CHICAGO—Honey has not been as active the past ten days as we had hoped for. We are selling white comb on a basis of 14 to 15c; Amber, 12 to 13c. Extracted 5½ to 6½c. Beeswax 29 to 30c.

S. T. FISH & CO.,

Dec. 2. 189 So. Water St., Chicago, Ills CINCINNATI, OHIO— There is a good deal of extracted honey offered, and prices, if anything, are a little lower. Dark sells at 5c.; lighter for 5½ and 6c; fancy, 6½ to 8c. The prices on comb honey keep up. Fancy sells at 15 to 16c; lower grades 121/2c to 141/2c.

C. H. W. WEBER,

Dec. 2. 2146 Central Ave., Cincinnati, Ohio.

NEW YORK-Comb honey continues in good demand. There is enough stock arriving to demand. There is enough stock arriving to supply all wants, prices ruling as follows: Fancy white, 15c; No. 1 white, 14c; No. 2 white, 13c buckwheat, 10c: extracted, rather dull. Prices ruling from 5 to 6 cents according to quality.

FRANCIS H. LEGGETT & CO.

W. Broadway Franklin & Varick Sts.

BUFFALO—Trade in honey is moderate for all grades, although fancy holds firm. We quote as follows: Fancy white, 15 to 16c; No. 1 white, 13 to 14c; Fancy amber, 10 to 12c; No. 1 amber, 9 to 10c; Fancy dark, 8 to 10c; white extracted, 5 to 6c; amber, 4 to 4½c; dark, 4c; beeswax 25 to 30c.

BATTERSON & CO.

92 Michigan St., Buffalo, N. Y. Dec. 2.

KANSAS CITY.—Honey market is active, and emand good. Receipts are light. Would addemand good. Receipts are light. demand good. Receipts are light. Would advise shipments of fancy white, comb. We want beeswax. We quote as follows: Fancy white, 15 to 16; No. 1 white, 11; to 14½; fancy amber, 14; No. 1 amber, 12; fancy dark, 10 to 11; No. 1 dark, 9 to 10; white, extracted, 8 to 9; amber, 7 to 7½; dark, 6½ to 7; beeswax, 23 to 25.

W. R. CROMWELL FRUIT & CIDER CO., Oct. 28. 423 Walnut St., Kansas City, Mo.

NEW YORK-Comb honey is in good demand, NEW YORK—Comb honey is in good demand, and prices are likely to remain firm during December. Extracted is rather quiet, and prices are generally shaded in round blocks. Beeswax dull. We quote as follows: Fancy White, 15 to 16c; No. 1, white, 14c; fancy amber, 12c; No. 1, amber, 12c; fancy dark, 11 to 12c; No. 1 dark, 10c; white, extracted, 6½; amber, 5½ to 6k; dark 5 to 5kc; beesway, 27 to 38c. dark, 5 to 51/2c; beeswax. 27 to 28c.

HILDRETH & SEGELKEN,

265 & 267 Greenwich St., Cor. Murray St.

Dec. 8; New York

CHICAGO—The honey market is of a slow mature, with little change in price of any of the grades. At this season of the year many of the retailers have laid in a supply sufficient to carry them over the holidays.

Choice grades, of white comb honey sell at 14½ to 15c; good to No. 1,13½ to 14c; Light amber, 12½ to 13c; dark grades, including buckwheat, 10 to 12c; extracted, white, 5½ to 7c; amber, 5¼ to 5³₄c; dark, 5 to 5½, the scale of prices varying according to quality, flavor and package. Beeswax, steady at 28c

R. A. BURNETT & Co.,

163 So. Water St., Chicago, Ills. Dec. 7.

WANTED-Very white, comb honey in nodrip cases; also extracted honey. State price, de-livered. We pay spot cash. Fred w. Muth, Front & Walnut Sts.. Cincinnati, Ohio

Reference, German National Bank, Cin'ti, O.

Listen! Take my advice and buy your bee supplies of August Weiss; he has



tons and tons of the very finest

FOUNDATION

ever made; and he sells it at prices that *defy competition!* Working wax into foundation a specialty. Wax wanted at 26 cents cash, or 28 cents in trade, delivered here. Millions of **Sections**—polished on both sides. Satisfaction guaranteed on a full line of **Supplies**. Send for catalogue and be your own judge. **AUG. WEISS**, Hortonville, Wisconsin.

Sections \$1.50

Jan. 1st we commence making extensive improvements in our factory and warehouse. The following regular No. 2 eections are on hand, and we desire to sell them before beginning the improvements, as they will be in the way. In order to sell them quickly, we make the low price of \$1.50 per 1,000 in any quantity.

420 M, 41/4 x 41/4 x 1 7-8 inches.

28 " 4¼ x 4¼ x 2

31 " 4¼ x 4¼ x 1 15 16 "

35 " $4\frac{1}{4} \times 4\frac{1}{4} \times 7$ -to the-foot.

24 " 4½ x 4½ x 1¾ inches.

2 " $4\frac{1}{4} \times 4\frac{1}{2} \times 7$ -to the-foot.

43 " 4½ x 4½ x 7-to-the-foot,

25 " 3 5-8 x 5 x 1½ no bee-way. 16 " 4 x 5 x 1½ no bee-way

52 " 4¼ x 4¼ x 1½ no bee-way.

Page & Lyon,

Mf'g. Co.

New London, Wis.

We have a Large Stock, and can fill Orders Promptly.

Send us your orders for hives, extractors, or anything that you want in the bee-keeping line. We make only the best. Our Falcon Sections and New Process Foundation are ahead of anything, and cost no more than other makes.

New catalogue and a copy of The American Bee-Keeper free.

W. T. Falconer Mfg. Go.,

JAMESTOWN, N. Y.

W. M. Gerrish, East Notingham, N. H., carries a full line of our goods at catalogue prices.

No Fish-Bone

Is apparent in comb honey when the Van Deusen, flat - bottom foundation is used. This style of foundation allows the making of a more uniform article, having a very thin base, with the surplus wax in the side - walls, where it can be utilized by the Then the bees, in changing the base of the cells to the natural shape, work over the wax to a certain extent; and the result is a comb that can scarcely be distinguished from that built wholly by the bees. Being so thin, one pound will fill a large number of sections.

All the Trouble of wiring brood frames can be avoided by using the Van Deusen wired.

Send for circular; price list, and samples of foundation.

J. VAN DEUSEN,

SPROUT BROOK, N. Y

We want to sell you bee-keepers' supplies. to give you entire satisfaction.

For these reasons we deal in Root's Goods, both wholesale and retail.

Our specialties—Hives, Sections and Comb Foundation.

Cash paid for beeswax.

1-01-tf

M. H. HUNT & SON, Bell Branch, Mich.

Honey Queens.

Did you know that I am seeking to give my customers the best possible service? Did you know that I have as good, or

Better Queens,

than can be obtained elsewhere?

Many have found this out, and continue my

best customers.

I am breeding, in separate yards, the golden, and the leather colored, honey queens, and selling them at the following

LOW PRICES.

Untested queens, 75 cts, each; six for \$4.00. Tested queens, \$1.00 each; six for \$5 00. Write for discounts on quantities. Breeders of either variety, the very best, such as I would use to restock an apiary, \$2.50. Breeders that produce faultless, five-banded bees, \$5 00 each.

W. H. LAWS, Beeville, Texas.

2nd-Supplies Cheap.

Mr. L. B. Bell, formerly of Brecksville. Ohio, has accepted a permanent position in Arizona. and wishes to dispose of his apiarian fixtures. He wrote to me about it, and I told him if he would have them shipped to me I would sell them for him on commission. Here is a list of the articles and the price at which they are offered.

30 Alley, Queen and Drone traps, at 35
All of the above are in my possession and can
be shipped promptly. The hives and cases are
well-made and nicely painted, and having been
in use only two or three seasons are practically
as good as new. Any one wishing to buy anything out of this lot can learn fuller particu
lars upon inquiry.

W. Z. HUTCHINSON, Flint, Mich.

Colorado Apiary

for sale. For \$1,400 I will sell my apiary, consisting of 115 colonies, all requeened from select queens giving big records last summer, 150 new, 10-frame, Dovetailed hives, na'led, painted and furnished with foundation, two supers with each hive, one Rauchfuss solar wax extractor, 11,000 No. 1, Lewis sections in supers and furnished with double starters of foundation, seven pounds of foundation to the 1,000 sections, and one 16 x 24 tent with matched floor. The apiary is located four miles west of Denver, one mile from car line, and six miles from the mountains in a splendid alfalfa region. The premises, consisting of a five-room brick house, artesian well, bearing fruit trees and strawberries, can be rented at \$100 a year. Address J. B. DODDS, Edgewater, Colorado.

Please well on the Review.

E lames of Bee - Keepers. Type Written.

The names of my customers, and of those asking for sample copies, have been saved and written in a book. There are several thousand all arranged alphabetically (in the largest States). and, although this list has been secured at an expense of hundreds of dollars, I would furnish it to advertisers or others at \$2.00 per thousand names. The former price was \$2.50 per 1000, but I now have a type writer, and, by using the manifold process, I can furnish them at \$2.00. A manufacturer who wishes for a list of the names of bee-keepers in his own state only, or, possibly, in the adjoining states, can be accommodated. Here is a list of the States and the number of names in each State.

Arizona 46	Ky 182	N. C60
Ark 130	Kans 350	New Mex26
Ala 80	La 38	Oregon104
Calif 378	Mo500	Ohio 1,120
Colo 228	Minn 334	Penn 912
Canada 846	Mich1,770	R.148
Conn 162	Mass 275	8. C 40
Dak 25	Md 94	$\underline{\text{Tenn}}$ 176
Del 18	Maine, 200	Tex 270
Fla 100	Miss 70	Utah 68
Ga90	N. Y 1,322	Vt 160
Ind 744	$Neb \dots 345$	Va 182
Ills900	N. J 130	W. Va 172
Iowa 800	N. H126	Wash 128
		Wis 500
	TATE OF TEXTS OF TAXABLE PARTY.	ICON Dist Mich

W. Z. HUTCHINSON, Flint, Mich

Great Clubbing Offers.

My friends, how many of you are reading some of the many, most excellent magazines of the day? If you are reading none, you are missing a great treat. Perhaps you regard them as luxuries. Possibly they are in some instances. They certainly help to fill out our lives, and give to us broader views. They are like windows that allow us to look out over the wide world. This life is not wholly one of dollars and cents—at least it ought not to be. Enjoyment, pure and simple, enjoyed just for the sake of enjoyment, is desirable and beneficial. To many there are few things that are more enjoyable than the bright pages of a really good magazine. To those who wish to give the magazines a trial, and to those who are already reading them, I can offer some of the lowest clubbing rates that have ever been offered. Here is a list of magazines, together with the regular prices at which they are published:

	er all
Review of Reviews \$2.50	
Current Literature 3.00	Leslie's Popular Monthly 1.00
New England Magazine 3.00	The Household
Leslie's Weekly 4.00	Good Housekeeping 1.00
North American Review 5.00	The Designer 1.00
	Success 1.00

If you subscribe for one or more of these magazines, in connection with the Bee-Keepers' Review, I can make the following offers:

Success, and the Bee-Keepers' Rev'ew, for only\$1.75
Success, and any one of the above \$1.00 magazines, and the Bee-Keepers' Review, for only2.50
Success, and any two of the above \$1.00 magazines, and the Bee-Keepers' Review, for only 3.00
Success, and any three of the above \$1.00 magazines, and the Bee-Keepers' Review, for only 3.50
Success, Review of Reviews (new), and the Bee-Keepers' Review, for only
Success, Review of Reviews (old), and the Bee-Keepers' Review, for only
Success, Current Literature (new), and the Bee-Keepers' Review, for only 3.00
Success, Current Literature (old), and the Bee-Keepers' Review, for only
Success, the New England Magazine, and the Bee-Keepers' Review, for only
Success, Review of Reviews (new), any one of the above \$1.00 magazines and the Review for only 3.50
Success, Leslie's Weekly, and the Bee-Keepers' Review, for only
Success, Review of Reviews (new), Leslie's Weekly, and the Bee-Keepers' Review, for only4.75
Success, North American Review (new), Review of Reviews (new), and the Review, for only 5.00

Magazines will be sent to one or different addresses as desired.

W. Z. HUTCHINSON, Flint, Mich.

Has Arrived.

The time has now arrived, when bee-keepers are looking out for their queens, and supplies, and your name on a postal card, will bring you prices of queens, bees, nuclei, bee supplies, and a catalogue giving full particulars, with a full treatise, on how to rear queens, and bee-keeping for profit, and a sample copy of "The Southland" Queen," the only bee paper published in the South. All free for the asking. 3-99-tf

THE JENNIE ATCHLEY CO.,

Beeville, Bee Co. Texas.

Every bee-keeper knows the worth of

A Good Queen,

knows the worth of a good strain of bees, also knows how worthless is a poor queen and inferior bees. Our bees rank with the first, and queens stand second to none.

Choice, tested, Italian queens, \$1.00 each. Orders filled by return mail. Safe arrival and satisfaction guaranteed. Send for price list. J. W. K. SHAW & CO. 3-91-tf Loreauville, La.

Please mention the Review.

National Bee-Keepers' Association.

Objects of the Association.

To promote and protect the interests of its

To prevent the adulteration of honey.

Annual Membership, \$1.00.

Send dues to Treasurer.

E. R. Root, MEDINA, O.

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Make Your Own Hives.

Bee - Keepers

Will save money by using our Foot Pow-Saw in making their hives, sections and boxes.

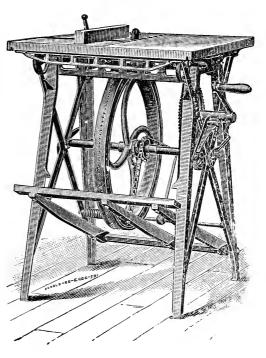
Machines on trial. Send for Catalogue.

W. F. & JNO. BARNES CO.,

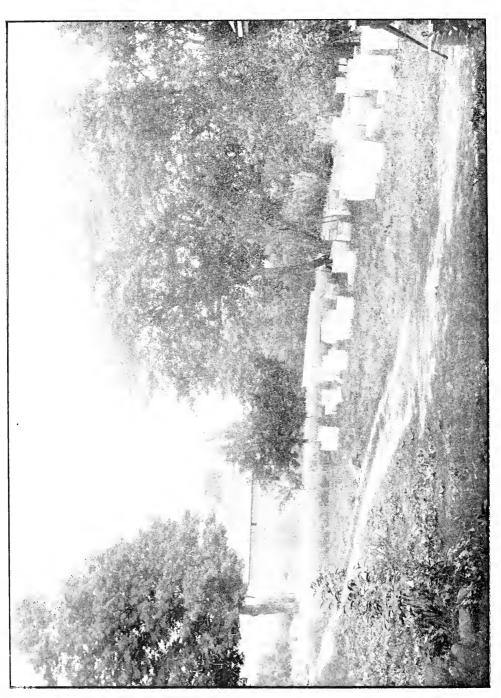
384 Ruby St.,

Rockford, Ills.









HOME - APIARY OF F. J. MILLER, LONDON, ONTARIO, CANADA.

The Bee-Keepers' Review.

A MONTHLY JOURNAL

Devoted to the Interests of Honey Producers.

\$1.00 A YEAR.

W. Z. HUTCHINSON, Editor and Proprietor,

VOL. XIV, FLINT, MICHIGAN, DECEMBER 10, 1901, NO. 12.

HY AND HOW I USE THE HEDDON HIVE. BY F. J. MILLER.

In the winter of '89-'90, I d ecided to again start bee-keeping in the



spring, with 20 colonies. I had kept a few in the city, as amusement only but from the experience I was sufficiently impressed with the hive-question to devote a lengthy perusal to all I could

get on the matter in current issues of the leading bee journals, as well as by purchasing complete volumes of Gleanings back to '74. These were carefully scanned for articles bearing on the various hives and methods of management.

This led to a careful study of Heddon's "Success in Bee Keeping." Then came a decision, to be made in time to make up hives for the colonies I intended to purchase, as well as for the increase; as I purposed transferring all colonies to the hive of my selection whatever it might be.

After going carefully over the ground, I selected the Heddon hive, from the fact that I could see a system of short cuts in management that I could not get from the hanging-frame hive; quite an item, as the bees were to be five miles from my business in the city, and the work was to be done mornings and evenings, with no person to hive a swarm, or look after the bees in any way during my absence.

As time has gone on, I have found this hive equally desirable for the busy man who looks for short cuts during a rush.

I clip all queens; having no greater difficulty than with any other hive. Then, for filling the hive with bees, I know of no system so effectual as to exchange the two cases forming the brood chamber, placing the one from underneath on top, not even requiring us to handle a frame for this work. Then, as the swarming season approaches, I examine for queencells by simply dividing the brood-chamber, by inserting my hive-tool between the two joints of the brood-chamber, at one corner, usually taking the end that will allow the sunshine best to strike the inside of the hive while open. grasp the upper brood chamber, by the end hand-hole, with my left hand raise it gently, puffing in the necessary smoke, giving a slightly drawing forward motion,

canting the hive from corner to corner, drawing it forward on the bottom brood chamber, probably one inch, and resting it against the left knee. I now grasp the end of the hive with the right hand, and place the left on top of the cover, pressing gently to prevent the supers from sliding off the raised brood chamber. As I raise all up to a sufficient angle to allow of looking under, I can tell in a moment if they have queen cups, open, or capped cells. If open cells, bruise them, closing the hive; if capped, I form a division by setting one chamber at the side of the old stand, giving each a brood chamber of combs, and it matters not which one contains the queen, all will be well until the next visit. This method of opening is continued until the third super is on the hive; from that time on I lift the supers down, or all but one, and open as before. During the swarming season this examination takes place with each hive at each visit to an out yard, about every four days.

In extracting, this frame proves itself as worthy as it has done all through the season's work up to the present time. If properly wired it is impossible for it to sag, and every comb completely fills the frame if the apiarist has done his part. Uncapping is more quickly and easily done than on deeper frames. Some prefer thicker combs. They may be easily had. I have never used them; have preferred to retain the interchangable feature, often using an extracting super from the top of some hive to form a second brood chamber where it may be needed.

Examination for brood is quickly made by dividing the brood chamber. There is no necessity for the removal of a cover or frame in fall management, unless a colony is to be requeened.

I have but poorly covered the ground in my description of the benefits to be derived from the use of this hive, but the more I use it the more I am convinced of its superiority for the specialist.

LONDON, Out., Nov. 1, 1901.

7 N-BREEDING, BY ADRIAN GETAZ.

This is perhaps the most important point to consider in our efforts to improve our races of bees. In-breed-



ing means using male and female reproductors of close parentage, even brother and sister, or father and daughter. The more alike are the male and female parents, or the more closely related they are, the more surely will

their characteristics and peculiarities be transmitted to their offspring. On the other hand, if the male and female parents are different in their peculiarities, color, qualities, size, etc., all sorts of variations may be expected in their descendants.

Now, suppose we have an extraordinarily good queen. If we can safely breed together her descendants, drones and queens, and keep up the process through the successive generations, the qualities of that queen will be transmitted to her descendants. Not only transmitted, but also intensified and fixed. The word "fixed" means that the offspring will invariably possess the peculiarties of their parents.

If, on the other hand, in-breeding can not be practiced, we will have now and then to introduce some queens or drones of outside and comparatively inferior stock. Their offspring will necessarily be inferior and irregular compared to those of pure stock. In a word, every introduction of outside blood will be a step backward in our efforts to create a superior race of bees. Needless to say, that it would be a serious drawback.

NATURE'S WAY.

The chief argument against in-breeding is that "it is not Nature's way." In

the state of Nature, mating between close parents is the exception, rather than the rule. In many plants, the female flowers are not on the same plant as the male. In others, the pollen is so situated that it can not fertilize the flower. Other pollen must be brought from some other plant by the wind or insects. The larger animals roam about, and find for mates all but their close relations. Queen-bees, ants and wasps mate away from home.

WHY IS IT SO?

Why is in-breeding injurious, or why is it avoided by the laws of Nature? I think I can give one reason, and I will explain it by an illustration. To make it easier to understand, I'll take it in the human race.

Suppose we have, say, three families of people, and it is arranged that no one shall marry outside of his own family. Suppose, also, that one family has a tendency to weak lungs; the other to weak stomachs; and the third to weak What would the result be likely to be? Why, the probability is that the tendency to having weak lungs would increase in the first family, as the generations go by, until the last member would die of consumption. The last family mentioned would finally become blind; while the second would die out of liver or stomach troubles. Now, suppose that, instead of having them marry in their own families, we let them inter-marry and mix together. Then some of the children may inherit some of the defects of the father and some of the mother. Some, perhaps, the defects of both parents; and some none of the defects at Those that have inherited mostly the good qualities, will remain. fittest will survive.

We do not know exactly how the present species of plants and animals have originated, but we know beyond a doubt that they have undergone many transformations, and that those best adapted to their environments have survived. The above illustration may give an idea why those propagated by mixing have

survived, rather than those propagated by in-breeding.

THE BREEDER'S WAY.

Now, I am going to make a very bold proposition. While, in Nature, in-breeding would bring bad results, it does not necessarily follow, that the same will occur in the hands of a skillful breeder.

In the above illustration, I took three families with defects; but the breeder of bees or other stock need not use defective stock or defective individuals. He can throw out all the subjects that are objectionable for some reason or other.

Suppose we were to take a colony of bees upon an isolated island. If we allow them to multiply just as they please, or if we raise queens indiscriminately, the defects that those bees may have, will surely be prepetuated, as well as their excellencies. But, if we select only the drones and queens that possess the good qualities in the highest degree, and the defects in the least degree, we shall surely improve the good qualities, and eventually eliminate the defects altogether.

We have made one step. But the question may be asked: "Is that all that there is of it?" Granting that one of the evils, or, perhaps, the chief evil, of inbreeding is the transmission of defects, granting, also, that this can be avoided by a proper selection, is it not possible that in-breeding may yet be an evil in itself?

To this, all that can be answered is, "What do the actual facts show?" In breeding bees, we, as yet, have no facts to show, owing to our inability to control the mating of queens; but we have numerous instances in other kinds of stock.

Even a superficial knowledge of physiology will show, beyond any possible doubt, that the same general laws govern all the living creation; plants, insects, animals, and even the human race. Of course, there are differences, and they must be taken into consideration, but the underlying laws, the fundmental principles, are the same throughout; and if in-

breeding can be practiced successfully with horses, cows, chickens, etc., we have all reasons to believe that it can also be practiced with bees; at any rate, until positive proof of the contrary is furnished.

ACTUAL FACTS.

In 1828, a French Merino sheep breeder had in his flock a lamb with smooth silky wool. He undertook to cross him with the ewes of his flock, but very few of the offspring showed the silky wool. However, when he was mated with those of his own daughters that also showed silky wool, *all* the lambs thus produced had also the same kind of wool. Thus was created the stock of silky wool Merino sheep. The whole race descended from that one lamb.

Concerning the Durham cattle, Chas. Colling had a bull which served the whole herd, including his mother, all of his daughters, grand daughters, etc., for six generations. This was the foundation of the present Durham race of cattle.

There is, at Lyons, in France, a large establishment which furnishes guaranteed reproductors of the different breeds of stock. As the object is to have perfectly pure stock of the highest grade, the closest kind of ni-breeding has been practiced. First, because an immense number of animals of each kind would have to be kept to avoid in-breeding; and, next, because the introduction of outside stock would have given irregular and often inferior animals.

On the Jersey stock the process has been followed seven years; and on the Friesian twelve years. All the animals are as perfect as they can be, and everyone raised is almost the perfect image of its ancestors.

The same can be said of the Merino sheep. Absolutely no tendency to run out or degenerate has been observed.

In the different races of pigs, the results are not so conclusive. The best races, that is, those that fatten the most and the quickest, cannot be submitted to close in-breeding without losing, to some ex-

tent, their reproductive powers. The mating becomes difficult, and the females have too little milk.

Concerning the Belgian hares and other breeds of rabbits, the results have been unexpected. All the breeds with brown or gray-brown hairs have maintained themselves throughout. Those having some white hairs, either in spots or mixed, have invariably drifted toward albinoism; that is, toward a uniform white color accompanied with red eyes.

The celebrated stock of Toulouse geese has not changed a particle. The whole lot at the establishment is exactly like the original stock chosen eleven years ago.

Some of the chicken breeds have also denoted a tendency toward albinoism. Those having white feathers finally became entirely white when closely inbred.

Needless to say, that the animals having any defect have been invariably set aside. This is absolutely necessaay to successful in-breeding. In regard to the in-breeding of swine, as noted above, the same peculiarities have sometimes been noted in the breeding of cattle. Bates, one of the founders of the Shorthorn race of cattle, practiced the closest kind of in-breeding during thirteen years; but the fecundity of his stock suffered, and he was compelled to introduce new blood three times, to maintain the fecundity. It is hardly to be supposed that the in-breeding in itself was the cause of the trouble. If so, it would have manifested itself in the Jerseys, Friesians and other milking breeds, as well as in the Shorthorns.

On the other hand, the same defect appearing also in the highest fattening breeds of swine, seems to show that the excessive tendency to take on fat is incompatible with a full development of the reproductive faculties. This could be expected, considering that an excessive disposition to fatten is something of a disease itself.

To obtain the best results in fattening, or creating a stock disposed to take on fat quickly and in abundance, it is necessary to keep the animals confined and very quiet, even in the dark, and fed with the richest food. Such treatment must be, in itself, almost enough to destroy the energy and the reproductive powers.

Concerning the tendency toward albinoism in some of the Belgian hares, the manner in which they are kept may have something to do with it. If, instead of being shut up in more or less dark pens, they were in the open air and the sunlight, that tendency might not exist.

Considering that our best breeds of horses, cattle, sheep, swine and fowls have been obtained, I might say *created*, by chosing the best specimens, and then perpetuating them by the closest kind of in-breeding, I think we are perfectly safe in following a similar course in our efforts to create a superior race of bees.

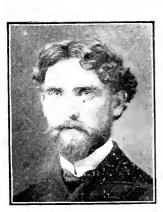
KNOXVILLE, TENN., Nov. 3, 1901.





PRELIMINARY STUDY OF QUEEN REARING FROM A SAFE STANDPOINT. BY FREDERICK B. SIMPSON.

With great pleasure, I note that Mr. Getaz (Nov. Review) has resumed his



courteous manner of discussion, and as the points mentioned are closely related to this subject, I will begin with them.

In regard to the effect of food, I do not confine its in-

fluence to the egg only, but also to the larva; although I there limited myself to the subject in hand and did not give my ideas fully. It is accepted by many in-

telligent biologists, that one of the prime causes (many go so far as to consider it the sole cause) of the origin of variation, lies in the influence of food, temperature, moisture, etc., upon the germ cells (in this case, the vital elements of unlaid eggs.) Or more plainly, the physical and mental (or instinctive?) qualities of a mare will effect to some extent the unborn colt. If she is starved, worried or crueily treated, she will so affect the nourishment of the colt she carries, as to modify his development, and cause him to vary from what he normally would have be-Likewise, if the queen accomplished the entire elaboration of the food that becomes eggs, this food would be totally modified by her own condition. This however is only very partially the case, for it is generally conceded that the egg producing food is elaborated almost entirely in a stomach other than her own (in the worker's.) Consequently, is it not reasonable to believe that this food will be modified by the qualities developed, undeveloped or latent, of the possessor of this stomach? And that these characteristics will thus be to a certain extent transmitted by means of the egg food as well as by the larval food?

We know there is an evident change in worker-larval food on the third or fourth day, but we have no proof that there is not a continuous, though probably unequal, change in the food going on continually during the feeding of the larvæ. From all we can learn, the spermatozooa of a black bee is identical with that of an Italian, physically and microscopically—yet we know that there is a biological difference; and can not there also be a proportionate difference in the food at different ages, although we can not see the difference in the food itself?

The nutritive substance upon which embryo bees are developed, is furnished to the queen by the workers, as is also the food to the larvæ which nourishes it, and which, during the five to seven days it is fed, forms the entire nourishment (unless we except atmospheric oxygen) on which the development of the perfect bee depends.

The workers maintain the existence of the colony, and upon them the influences of food, climate and management have their effect. And it seems almost a fact to me, that the workers must transmit this effect in some measure, to the embryo and larval bees. Of course, it is futile at this time to attempt to say how much this effect amounts to, for it is undoubtedly extremely slight in comparison with the hereditary properties of the combination of the germ cell with the sperm cell. Yet, by the very nature of the bee, I feel sure that this must be greater than that of the maternal (during gestation) influence among the higher animals. The more study we give the subject, the more we must be impressed with the almost automatic and involuntary nature of the queen, by reason of the influence of the workers on her couduct, and while giving the queen her just due as the mother bee, I think we can get a clearer conception of the great importance of this food question, which has no parallel among the higher orders of animals, if we will temporarily (without of course attempting to dispute them) take the opposite view from that of the authorities, and consider the queen as a worker with abnormally (perfect sexually) developed ovaries, and aborted as to worker qualities; especially as to the brain. Although a general believer in the "survival of the fittest," and admitting its partial influence upon tongues, yet I cannot consider it as adequate in accounting for increase in tongue-length, nor as reasonable to me as the idea of worker-influence; for if it is sufficient, why do we not find considerable increase in tongue-length among the black (wild) bees which owe their very existence almost solely to the "survival of the fittest," especially in long-corolla-tube-localities? What little data I have on this point is on the other side.

Then, again, if, as Mr. Getaz states, under the heading "Horatio's Philosophy,"

a habit can so easily be commenced, why is it not logical to suppose that it could be as easily transmitted? And likewise if bees can obtain the "cross" habit so easily can they not with the same ease acquire the "defensive," and thus render themselves more "fit," without regard to their breeding; in which case the mother's relation to the "survival of the fittest" must of necessity be principally confined to the transmission of the *possibitity* of varying in habits and characteristics; which proposition does not seem tenable.

I think Mr. A. C. Miller and myseif agree on most of the essentials, and I regret that Mr. S. E. Miller wrote in a manner which seemed to put us in opposition to each other. I am working on a number of points that I expect to absolutely prove one way or the other; and I will then give them to the public. am giving my ideas on other subjects for the purpose of giving the public a chance to prove them, as it is unlikely that I will ever have the opportunity. style I have adopted, although perhaps too advisory, seems clearer than the exposition of principles in the abstract without examples.

NATURAL QUEEN REARING.

In Nature at her best, and in her most normal condition, and as least affected by the commercial requirements of man, we will find a model of queen rearing which will well repay study. There will certainly be differences of opinion on this subject, so I therefore use brackets where I offer a suggestion or opinion different from what is usually accepted.

Nature supplies a colony with the reproductive power to sustain itself; in addition to which it supplies an additional reproductive power for the sustaining of the species. Unlike those species such as moths and butterflies, there is apparently no very great mortality among the larvæ (there is undoubtedly some, but in normal nature it is probably comparatively slight), it being Nature's method to limit the production by means of the wiping out of entire colonies; usually through

the rigors of climate, rather than great mortality among the individuals in their preparatory stages.

Usually (especially in Northern localities) a colony headed by a young queen, does not swarm. In strictly natural swarming at its best, a queen that has passed through at least one winter lays drone eggs at an appropriate time, and the population increases until things are most favorable for the welfare of a swarm. Most mammals at maturity naturally produce individuals of both sexes, although they may produce them before maturity; whereas, their reproductive capability after maturity normally (in the great majority of cases) is not confined to the bringing forth of a single (Can we not logically reason by by analogy, that the young queen's colony does not swarm, because she is not sufficiently mature to naturally produce drones, and that where this rule does not hold good and swarming occurs with a young queen it may be due to unusual precocity? In short, that Nature wants a mature queen to head her increase expedition.) (It seems to me that in the North a queen requires a winter in which to mature, whereas in the South it would doubtless be different, but the point I wish to make is that Nature does not normally rear queens until the queen mother has matured, as she does not usually swarm until that time.) I believe it is usually accepted that golden queens produce lighter workers after wintering; but I have no data as to whether they continue to become lighter annually; if they do not, this maturity idea might explain the difference. The only use of drones has been agreed to be for reproduction. production of drones would therefore be the first sign of "increase," and may not the entire economy of the colony from that time until swarming, be based on This statement is eventual swarming? for the purpose of showing that the workers may know of the intention to swarm, early enough to have some effect upon the food which forms the eggs that

will eventually be selected either as eggs or larvæ for rearing queens. Just before swarming, the queen falls off very considerably in egg laying, it not quite possible that the egg producing food which is denied her forms a part, at least, of the royal jelly forthe queen larvæ; and might not the number of natural swarming queen cells give us a comparative idea of the prolificness of the queen compared with others that prepare to swarm at the same time?) In Nature, the queen's worker daughters are the only nurses for her royal daughters; and as the healthy mother supplies the most appropriate food for her infant, is it not likely that the queen's own daughters will supply the most appropriate food for her royal daughters? For Nature never uses wet nurses. that the feeding of queen larvæ is normally done in the presence of a queen capable of laying. (Possibly such presence acts as a stimulus for the elaboration of the best royal jelly.) On the other hand, the virgin queen does not emerge in the presence of a queen capable of normal laying. That is, the surviving virgin, after the swarm leaves, is secondary to no other member of the hive. So far as I can learn, her treatment is little different from that of the young workers up to the time she becomes hard to introduce, when I believe a critical time occurs, and she is fed with a nutriment especially adapted for the perfection of her generative function. While I consider this an important matter, and that her worker sisters may be able to exert some influence through this nourishment, yet I consider it extremely slight in conparison with the possible influence upon the larvæ. For in the larval state we have a development and changing of organs, whereas, in the perfect insect we have more of an awakening of the quiescent organs into functional activily. The young queen begins laying on the "old stand" with her sisters as nurses and maintainers of the colony, and we know that if there is any influence exerted through the nurses and c ... bees, it will be in keeping with their breeding, and not in opposition to it, and therefore the naturally reared queen will very possibly give us a truer idea of her quality sooner than when starting her laying among a mixture of alien workers. And in this connection, in might be well to note that several successions of workers may have to hatch before we can get a true idea of the quality of an introduced queen. The fact that this virgin, and also after she begins laying, is secondary to no other queen to which the workers have access, may be an important factor in the perfection of her functions. sibly the fertilization of queens from the presence of a laying queen may account for the "imperfect contacts" reported by one observer, and they may likewise indicate a generative weakness from that cause—the nurses having a plurality of royal charges-although the close confinement of young queens may be responsible for this.)

Nearly all of the above conditions will apply equally to the superseding of queens; and I believe that queens reared from the first batch of supersedure cells are usually equal to those from swarming cells. (I mention the first batch because we generally credit the bees with sufficient intelligence to rear queens while the mother bee is capable of producing the best quality, but we can get very little idea as to just how many batches may be reared before the failing of the queen may affect the offspring, therefore there is safety in the first batch.)

If it is accepted as probable that the workers affect the queen larvæ or eggs, by the influence of their qualities upon the food, it must naturally follow that different colonies will affect the developing queens differently. That if an effect is produced through the food for the queen we will have an antagonism, if the subsequent food comes from a different colony, and that the greatest tendency towards uniformity would be obtained by rearing queens in the same hive in

which the eggs were laid, and by having them nourished by their worker sisters.

If it is accepted as probable that it may take some time for a queen to mature after emerging, it would be well, if we attempt to follow Nature, to select queens that are known to be of full age, probably the majority of breeders will agree upon the second year as the best age, but if queens are made to "do their duty in a full colony," it will probably be found safe to use a queen of any age over a year, when she is found in a colony that is strong enough for commercial queen rearing.

My idea as to the system of government obtaining in a colony (which I give simply as a personal opinion which is necessary in order to understand what follows) is, that each bee has communication with all the other members of the hive, and knows what they are doing; that the order of precedence is probably according to age, so that each bee, when old enough to labor, does that work for which it is best fitted by age; unless there are a sufficient number doing that work, in which case it does that which it is needed for in the order of its fitness. That as it grows older it replaces some bee that is a little older, and its work is done by one a little younger. That when the supply of larval food is greater than the demand, and when the mortality is not sufficient to supply appropriate work for the large number of young bees, their combined idleness, coupled with the surplus amount of food they possess, causes unrest in the shape of the swarming impulse. The principle I wish to derive from this, is, that a normal colony contains no lack of bees of any one agethat there is a proper balance of all ages, and very likely every bee is doing that for which it is best adapted, and the quality and quantity of work, or its result, which any bee does, is in direct proportion to its "age-fitness" for the doing of that work. From this it would follow that it would be safer to gradually contract a large colony to preserve com-

parative strength, and to be content with successively small batches of queen cells, within safe limits, rather than to strengthen colonies by destroying their balance by the introduction of alien bees that would naturally tend to contaminate the influence of the food, and, for a time, at least, cause an interruption of the domestic tranquility. I have been conducting some interesting experiments on mixing of bees, and I hope to conclude them next season, as they tend to show another very important cause why bees should not be mixed. I think the keynote of commercial queen rearing is in the transfer of eggs or larvæ—I believe that the majority will agree that such a procedure is necessary. So far as safety of the larvæ is concerned, I consider the Alley plan the best, but it requires the use of queenless bees, which I consider less natural than just hatched larvæ, primed with the smallest necessary quantity of royal jelly elaborated by their sisters. The Alley plan of using strips of comb seems to me safest, although with practice the "cradle and all" method seems nearly equal, and I use each, according to whether the comb is old or new. If the thinness of the base is objectionable (in the Alley plan) it could very likely be remedied by several coatings of warm wax, and I prefer to go to the extra trouble of removing the surplus larvæ and eggs with a brush or quill rather than make the bees clean out the phosphorus from a match. For reasons above implied, I do not believe in the use of nurseries for hatching queens, nor do I think upper stories are the safest, and I have adopted, for my own use, nuclei composed of six, half - length, shallow frames. I consider the three-(shallow) frame nucleus as a very safe limit of size; first, in order to have sufficient bees to minister to the queen's needs at a critical time in the perfection of her generative function; second, to give her room for sufficient exercise and development of her muscles, and third to have sufficient o mbs to allow her to lay one egg to the

cell without constant manipulation. soon as the space becomes too small for the third requirement I tier up. In order to make the quickest and best selection among nuclei, it would evidently be desirable to form those nuclei from bees that are sisters to the respective queens contained in such nuclei; but, of course, this would be commercially impossible: so we will have to form them from other colonies; but, as above indicated, it is safe to let each nucleus come from one colony and not mix them, especially if the queen is about to hatch. I do not claim that smaller nuclei cannot well be used, and in an emergency I would very likely make three, two- (half) frame nuclei out of each little hive, and then make a subsequent selection; but except under great stress of circumstances I would see that each queen had three frames before she had been laying long. I am in accord with Dr. Miller on this subject, and I believe it is poor economy to keep fewer bees at the expense of greater manipu-The reason why my queens "must do their duty in a full sized hive" is because it is the easiest way for me to make "other things equal" so that I can annually judge from a honey producing standpoint, and also judge their comparative longevity from the same point of view; besides which I do not want to take the trouble of manipulating sufficiently to keep them doing a reasonable amount of duty in a nucleus. I am treating the nucleus from a selection standpoint, and not in relation to preparing a queen for journey, in which case the ideal method would probably be to gradually reduce the number of bees and amount of space until they equaled the size of the shipping case; which of course can only be roughly approximated in practice.

There are numerons questions which should be scientifically solved, and which when answered would materially affect commercial practice. But few of us can give much attention to these subjects, while, as Mr. C. P. Dadant has said, (in substance) it would be well if we all tried

to produce fixed traits in our bees. The commercial queen breeder is a business man with a certain number of patrons who depend on him for his product, and when conditions are perfect he can produce queens in the way he considers most perfect, but when they are not he must exhaust his ingenuity in devising the best method to suit the circumstances; and it is entirely out of my province to criticise such methods, especially in consideration of the fact that I have purchased the most excellent queens, notwithstanding that they have in many cases been reared by methods diametrically opposite to those in which I believe. But the ideal breeder would be an equal blending of artist (practical business man) and scientist (truth seeker) and we find that many possess both qualifications in a considerable degree. Therefore, this medley of opinions, questions, theories and citations, is for the purpose of inducing queen breeders to determine in their own minds just what would be the closest approach to normal nature at her best; and to annually rear a few queens by the method so determined; and at the same time rear a few from the same mother by their commercial method; with a view to comparing the results which might eventually suggest valuable improvements.

A comparison of commercially reared with swarming and supersedure queens is very desirable, and also especially in cases where the colony can be broken up into nuclei after swarming or supersedure, allowing the young queens to begin housekeeping with their sisters. with a view to comparison with the commercial method I consider it highly important to use a plan contemplating the transfer of larvæ, eggs or cells. ficulty with most comparisons, is that they are not made at the same time, and many are not continued long enough. It must be understood that there may be important differences almost too slight to be noticed, and it may take several generations to bring them out clearly, but with our present knowledge it will very likely be far easier to hold and fix slight improvements in quality than very great ones, and this with greater uniformity. Most arguments are two sided, as, for instance, if the "X" strain has for years been reared by black nurses, may not their superior energy be due to the influence of the "black food" which has given them qualities not natural to the "X" strain? Or, on the other hand, might not the "X" strain be so superlatively superior that they would have shown even greater quality had they been nourished by their own sisters?.

There is one quite considerable objection to the above indicated method, and that is from the fact that bees are not so readily inclined to build cells in the presence of a vigorous queen, except under the swarming impulse; but after weighing both sides of the question I think it will be found that the advantages are in excess of the objections, and if the queen excluding division board or full sized excluder is so applied that the queenless portion will be in a part of the hive in which the queen has recently laid, queen cells in good quantity will soon make their appearance. The danger of a queen being superseded through neglect to remove a cell, will only appeal to those whose system of management is faulty.

In partial support of the foregoing, I will call attention to the silk worm, which, although of another order of insects, and of very different habits and qualities, is (if I am not mistaken) the only insect besides the bee, which man has ever attempted to breed on a large scale. The silkworm, by being kept under very artificial conditions, has developed some hereditary diseases to such an extent that in France and Italy alone, during a period of only thirteen years, this cause re sulted in a loss of over six hundred million dollars; and the most practicable remedy was found in restoring the breeding stock to conditions in the open air as near the *natural* ones as possible.

[Here is a correction from Mr. Simpson that came to hand too late to appear in

the November issue—Ed. Review.]

At last, thanks to Editor York (American Bee Journal, page 691), my error has been specifically pointed out, and I am glad to correct it, for I did not say what I meant. I said "I believe that long tongues are of no value only so far as they represent an increase of vigor," I meant to say "I believe that long tongues are of no value except in those cases in which they represent an increase of vigor." Mr. Doolittle's measurements (Nov. "Progressive") tend to confirm this position.

CUBA, N. Y.. NOV. 22, 1901.



XPERIMENTS IN MATING
QUEENS IN CONFINEMENT.
BY W. E. FLOWER.

One of the most difficult problems that confront the bee-keeper, is



how to get his queens purely mated. With this end in view, many experiments have been tried with varying results; especially is this so when he is located near a

forest where common or black bees are sure to be found. During the past forty years many bee-keepers have tried to mate queens in confinement in greenhouses, tents, and all sorts of places, from a ten-foot room to a lamp chimney. Several months ago there appeared an article on this subject in the Review, in which the writer claimed to have succeeded in having queens mated in a large pen or tent covered with netting. The plan or method given seemed to me to be so reasonable that I resolved then and there to give it a trial, but, owing to a press of other work, I was unable to get

the tent built until some time in August. The tent described in the Review was about thirty feet high, and about the same in length and breadth. As such a tent would be both costly and difficult to build, I thought a much smaller one might possibly answer; so I built one against one end of my barn, making it 12 feet long, 10 feet high, and 6 feet wide. The frame being of shingling lath around the bottom, I placed a 12-inch board, edgewise, on the ground, sinking it 2 inches into the ground so that no bees could escape underneath. Six feet above the board the tent was covered with muslin. Above that, and over the top, mosquito netting was used for a covering. Through the board around the bottom, about three inches from the ground, I cut entrances for the hives. Over these entrances, on the outside of the board, I nailed queen-excluding zinc, using for this purpose the old fashioned, or Chicago, zinc, such as Mr. Alley first used upon his queen-traps when he first made them. This zinc has the smallest perforations of any that I ever remember to have seen, and I frequently noticed that some of the workers had to wiggle and squirm pretty hard to get through, so I do not think it possible for even a virgin queen to pass through it; as I have caught virgin queens in the Alley trap when covered with this zinc. On the inside of this tent I arranged seven, three-frame nuclei with the entrances of the hives directly opposite the entrances cut in the board, the hives being placed tight against the board, and securely fastened there so that no bees could possibly escape except through the zinc covered entrances in the board.

In the arrangement of the hives, inside the tent, my plan differs from that given in the Review; there the hives were on the outside of the tent. My reason for putting them on the inside was this: if, when opening a hive, a queen should take a notion to fly out from the top, as they sometimes will, she would still be *inside* of the tent. At the back end of each

hive I bored two or three ½-inch holes to permit the queens and drones to fly inside of the tent. These rear entrances were kept closed for a week or ten days after the hives had been placed in position, in order to get the workers accustomed to using the front or outside entrance; the idea being to try and prevent the workers from flying in the cage, so as to leave it entirely for the queens and drones.

I succeeded in getting queen cells started in full colonies, and also secured an abundance of drones by catching them with the Alley trap and putting them in the hives in the cage; but this I am now convinced was a mistake, as they worried themselves to death trying to get out through the zinc at the front entrance. I was fortunate enough, upon looking through some of my strongest colonies, to find several frames containing sealed drone brood. This I transferred to the hives in the cage, and soon had a fine lot of drones born in captivity. They soon learned the ropes, flew freely in the cage, and invariably returned to the hives at night; but, strange to say, many of the workers would come out in the cage, and cluster in little knots or bunches in the corners of the cage, and stay there until they died; but the drones seemed to know how to find their way back to the hives.

The first lot of queens hatched out and disappeared. Just what became of them I do not know. I did not bother looking for them, but gave each colony a frame containing eggs and brood, and they proceeded to rear another lot of queens In due time these hatched, and one was fertilized and commenced to lay. The others, some of which I saw, not having commenced to lay, and the drones having died off, it being too late for further experiments this season, I doubled up the nuclei for winter.

While the thing has not proved an entire success, neither can it be said to have been an entire failure. There are several things to be looked at in connection with these trials. First, the lateness

in the season; then I am inclined to think I made the nuclei too strong so that too many workers flew in the eage. Who can tell whether the drones were of the proper age? While I am somewhat disappointed in the result, yet I am greatly encouraged, and if my life is spared, I shall certainly try again next year, when I hear the "Hum of the bees on the apple tree bloom."

ASHBOURNE, Pa., Oct. 10, 1901.



FFECT OF THE NURSE BEES
ON THE LARVÆ. BY
ARTHUR C. MILLER.

On page 271 of September Review, Mr. Getaz says: "Mr. F. B. Simpson made



big, big slip" in in his statement that the efforts of worker bees to reach nectar in deep tubed flowers will, after several generations, result in longer tongues.

Mr. Getaz seemed so well informed on biological mat-

ters, I was rather surprised that he failed to see that Mr. Simpson's statement was not only not a *slip* but was in the realm of probability. But Mr. Simpson himself, though feeling "certain that the workers must influence the eggs as well as the brood," frankly says he doesn't know how it is done (October Review page 303.)

I will endeavor to show how this is perhaps accomplished, and call attention to factors which we have not heretofore taken into consideration. The larval bee is a bee in embryo, and bears the same relation to the perfect bee that the fetus of the higher animals does to their mature form. In the latter, the embryonic animal is nourished from the blood of the mother; in the former, the worker takes the place of the mother of the higher

animal; but, instead of nourishing the larva from the blood, she does it with digested food—chyle; a substance ready to be absorbed into the blood and used in building tissue. There is good physiological ground for believing that the nature of the chyle is governed by the physical conditions and needs of system in which it is formed. In the higher animals it is believed that great changes may be made in the development of the embryo through the mother, by means of food and environment. branch of the subject has been the cause of many and weighty discussions, and I can only refer to it most superficially.) If the worker bee has been struggling to obtain nectar, and in doing so has stretched and exercised the tongue and its associated parts, the food in the stomach, it is believed, will be prepared to especially rebuild those parts. Now if such chyle is given to the larva it is not illogical to believe that it will tend to develop the same (tongue) parts of the embryonic

Again, if the queen receives the chyle from such a worker it may be that it will have its effect on her and through her on the developing eggs. We have long recognized, and unquestioningly accepted, the fact that food causes the differences in a growing larva, determining whether it shall produce worker or queen. change has been attributed to the quantity and quality of the food. Perhaps, and probably, it is something more subtle, I think I have proven beyond doubt that partial development of the ovaries and the consequent production of eggs can be brought about in mature and formerly normal workers; producing what we term "fertile workers." It takes dire need of a "mother" to cause this change.

Again, we find that queens reared at unusual seasons of the year, though the larvæ appear to be properly nourished, often prove poor, small and short-lived, or defective in some way.

Much of our reasoning on this subject must be done by analogy. It is right for us to judge thus, for the bee is an animal, and is subject to the same basic laws as govern the development of higher forms of animal life, the difference being but in degree.

It may be claimed that the nurse bees do not go to the field except for a short period during the latter part of the time they act as nurses. I think this is an error. Certain young bees may be found regularly gathering honey and pollen on the same trip, and I believe they are nurse bees. I also believe that bees act as nurses much longer than we have been accustomed to think. Also under some circumstances and conditions old bees can and do act as nurses, and it is not improbable that some honeys heavily charged with pollen may tend to increase chyle formation in the regular field bees, in which case they would give of their surplus to the queen or other bees if it was demanded, otherwise it would go to the larvæ.

In explanation of the expression, "if it was demanded," I wish to call particular attention to the following: Except in the exercise of the latent "mother instinct" in feeding larvæ, a worker-bee never voluntarily gives food to any other bee, either queen, drone or worker. Food always has to be asked for-sometimes apparently taken by force. A bee wanting food (other than honey or when honey is not accessible) "holds up" all comers until one is found with a supply. As soon as the latter can be persuaded to give, she opens her mouth and hungry bee puts her tongue well into it. The giving bee at the same time generally curves and contracts her abdomen, much as if to sting, which is probably necessary to enable her to disgorge the food when the stomach is not full. The curving of the abdomen is not always done. The tongue of the giving bee during the operation is curved back under the "chin" nearly as close as it is normally carried when not in use. The abdomen of the taking bee palpitates as when taking nectar from the flowers or honey from a

cell. I have often seen a drone seize the worker by the "cheeks," tip up the worker's face to a convenient angle, and hang on until either she had no more to give or he had gotten his fill. The sudden show of tongues when a queen or or other bee is getting food thus is purely a case of trying to get dainties, and is not an *offering* of food to their royal mother or distressed sister.

I do not wish to be understood as asserting that the theories on food influences as embodied in this article are indisputable, but simply that I believe them to be well founded. Neither do I consider my remarks more than superficial allusions to a deep and complex subject.

The statements regarding the way bees obtain food from each other are, I think, new, and as I have carefully studied the subject I do not hesitate to affirm the accuracy of my observations. The discoveries of these facts I believe will prove to be far reaching, particularly in regard to the nourishment of caged queens.

Since the foregoing was written I have found in scientific works allusions to the same subject, but I do not know by whom the fact was first established.

PROVIDENCE, R. I., Nov. 1, 1901.



OFFICERS elected at the Colorado convention are as follows: President, J. U. Harris, Grand Junction; Vice President, M. A. Gill, Longmont; Treasurer, Mrs. R. H. Rhodes, Ft. Lupton.

COLORADO, and its Characteristics as a Honey Producing Country, is the title of an article written by the editor, that will appear in the next Review. It will occupy several pages, and be embellished by a number of pictures taken by the editor during his recent trip to that State.

HARRY S. Howe is another one of our bright young bee-keepers who has launched his bark upon the entrancing seas of matrimony. On October 11, he was married to Miss Maria Cabrera, of Castora, Cuba. May the bride be among women what fair Cuba is among islands—a queen.

WHEN RENEWING, please criticise the Review. Tell what you like about it, and what you don't like. Tell which correspondent is your favorite, and why. Tell which department you find the most helpful, the Extracted, the Editorial, or that of original correspondence. It would be of great help to me to know what my readers regard as faults of the Review, as well as its excellencies. All correspondence on this subject will be considered as confidential.

LUDICROUS INCIDENTS often happen even in a bee convention. At the Denver meeting, the President was tilting backwards and forwards in his tilting arm chair, when he put a little too much enthusiasm into his backward tilt. A horrified look on his face, and frantic efforts to recover his equilibrium, were of no avail—over he went, with arms and legs sticking in the air. He rose to his feet laughing, and the audience laughed with him, and all passed off as smoothly as though arranged according to program.

XPXPZKZKKKK

REPORTERS' "BREAKS," when they attempt to write up a bee convention, are often amusing to a bee-keeper. Here is one made by a Denver reporter at the recent Colorado convention. Among other things, he said: "Over 150 members were present, and only a few looked as though honey had soured on them. Like all industries, that of bee-keeping produces a characteristic face. An expression of pugnacious patience, ready to combat the stings of outraged drones, is the general cast of countenance, and makes a bee-keepers' convention a most interesting and entertaining affair."

POND LILIES furnish honey, according to the report of Mr. Ira V. Reeves, of Pinckney, Mich. He says that there is an old mill pond of 10 acres near his place, in which the lilies begin blooming in June, and continue until September. From July 20th to August 20th the pond is one solid mass of bloom. The lilies furnish a light amber honey having a flavor something like that of apple. One year, one of his colonies filled 140 sections from the pond lilies. Have I anv other subscribers who have had experience with pond lilies?

ALFAFATA ALFA

BISULPHIDE OF CARBON will, according to most of the testimony given at the Buffalo convention, destroy the vitality of the eggs of the bee moth, as well as The combs must be in a the larvæ. close room, or in closed hives, so as to confine the gas that is given off by the bisulphide of carbon. This substance should be placed at the top of the room or stack of hives, as the fumes are heavier than air, and settle down. This gas, like that of gasoline, is explosive, and all lighted matches, lamps, etc., must be kept away while the bisulphide is being used.

THE MICHIGAN State Bee-Keepers' Association, will hold its annual convention at Petoskey, Jan. 1st and 2nd, 1902. This promises to be the largest attended meeting of the Association in years. You are invited to attend. rates on all Railroads. Tickets can be bought on the 30th of Dec. or on the 1st of Jan., good to return not later than the There will be no set programme, but another of our open Congress meetings. Those who have attended in the past know what that meaus—those who don't, should come and find out. novel design for badge has been ordered in honor of "PETOSKEY."

The editor of the Review expects to be present, and would be glad to meet as many as possible of his friends.

EXTRACTED.

FOUL BROOD IN MICHIGAN.

A Report of the Work that has been Done by Michigan's Efficient Foul Brood Inspector.

Some of my readers know how we worked, and struggled, and succeeded, in securing the passage of a foul brood law in Michigan, and secured the appointment of our best man for the position of Inspector. Mr. Rankin has finished up his work for this year, and makes the following report:—

To the Honorable Dairy and Food Commissioner:

SIR—I herewith submit my report for the work done during the months of July, August, September and October, as State Inspector of Apiaries. I have visited in all 206 apiaries, having in them a total of 3,286 colonies. I have been compelled to burn only one colony. These apiaries were scattered through the counties of St. Joseph, Hillsdale, Lenawee, Washtenaw, Jackson, Calhoun, Barry, Eaton, Ingham, Livingston, Oakland, Macomb, St. Clair, Lapeer, Genesee, Shiawassee, Clinton, Ionia, Muskegon, Montcalm, Gratiot, Saginaw, Tuscola, Sanilac, Oceana, Mason, Lake, Manistee, Wexford, Benzie, Kalkaska and Antrim.

I have found the disease more prevalent in the older sections of country, that is, there is more disease in southern and central Michigan than in the northern part of the State. In the north it is confined to localities and is not of very long standing. In almost every case it can be traced back to the bringing in of diseased bees or fixtures from the south. In the southern part however the disease is scattered promiscuously and breaks out in yards, infecting many colonies, without any apparent source of contamination.

I have found many bee-keepers who are perfectly ignorant of the disease, and even when it is present in their yards, and a large proportion of their bees are diseased, they fail to see that anything serious is wrong. These bee-keepers, of course, belong to the class who keep a few bees as a side issue and are not posted in modern apiculture. Then, again, I have found the disease present in the

apiaries of specialists in bee culture, who are unfortunate enough to be located in the same vicinity with one of these other bee-keepers who are not posted. The uninformed man will not listen to the advice and pleadings of the specialists, but will leave diseased colonies to die, and be robbed out by the bees from the larger yard; in this way working ruin on the helpless specialist, who cannot control the action of his ignorant neighbor. Then oftentimes when this specialist resorts to the protection of the law to compel his neighbor to clean up the diseased yard he is looked upon by the people of his vicinity with the utmost contempt.

The most active agents in spreading the disease are, first, that of robbing out colonies which have become weak and run down; and, second, that of using old hives in which the bees have died from the disease.

A grave difficulty arises when treating the bees to overcome foul brood in that it is a very hard matter to impress upon the uneducated man the necessity of careful work and the nature of bacteria. will neglect some small but important matter, or fail to take some necessary precaution in order to insure success. As a consequence, the treatment is frequently a failure. This is not always the case, however; many apiarists are eager to learn all that is to be known about the disease, and by careful, persistent work have stamped it out of their yards. treatment used by many apiarists has been to kill the infected colony with sulphur, remove the hive to a cellar, and cut out and save for home use all good honey, scrape clean and disinfect the hive, finally burning all refuse, scrapings and inside furniture. This method of treatment entails much less work than attempting to cure the colony, and the honey and also the hive is saved.

The needs are great, and many localities where the disease is known to exist have not been visited at all. Many of the localities visited this summer must be covered again at the beginning of next season to insure the effectual stamping out of the disease. I have met with the most hearty co-operation on the part of the intelligent apiarists of the State. They have not only manifestsd an interest in the work, but in many cases have materially assisted in the eradication of the disease in their locality.

Respectfully submitted,

JOHN M. RANKIN.

There is one point in the foregoing to which I wish to call attention, and that

is the cutting out and keeping for home use of honey that probably contains the spores of foul brood. I suppose the honey is perfectly healthful as human food, but I should never sleep well nights if I knew that foul broody honey was in the house, and being used daily on the table. The dishes in which it is served up for use on the table will be washed; the water will not be hot enough to kill any germs that may be in the honey, and then this infected water will probably be thrown out on the ground. It is not likely that there will be enough honey in the water to attract the bees, but they are often seen sipping up water where it has been thrown out, especially in times of drouth. Perhaps I am unduly particular on this point, but it seems as though it was worth consideration.

It is very evident that Mr. Rankin is doing good work—I only wish that we had as good a man as he is at work in each State in the union.

THE LIFE OF THE BEE

A Beautifully Written Work for the General Public.

When I visited Mr. F. B. Simpson last September, he asked me if I had read Maurice Maeterlinck's new book, "The Life of the Bee." He had read and greatly enjoyed it; and, upon finding that I had not read it, very kindly presented me with his copy that I might have it to read while on the train going home. Before darkness came down over the landscape, I had read the book about half way through; since then other duties have been so pressing that I have not yet fiuished the reading. Perhaps it is just as well, as I now find, in the American Bee Journal, as a most beautifully written review of the book, that I take pleasure n copying into the Beview. In going over this review, and comparing it with the portions that I had marked in the book for notice, I find that, as far as I read the book, the points that I wished to notice,

and the ones taken up in the Bee Journal review, are almost identical. I presume it is safe to assume that we would have similarly agreed on the last half of the book.

The book was not written for the instruction of bee-keepers. The up-to-date bee-keeper would probably not find an idea that would assist him in the management of his bees. The book is written for the general public-especially for those who enjoy fine literature. book is beautifully written, and may be read with a great deal of enjoyment. is more nearly correct than most of the books written about bees for the general public; and it seems a pity that the author should state that he had verified all of the scientific statements that he makes. or else that they were so fully accepted in the text books as to need no further verifications, because, as the writer in the American Bee Journal says: "The practical bee-keeper will hardly forbear some doubt as to the accuracy of some of the supposed facts."

The book is attracting the attention of literary people, and is being noticed in the magazines. Of course, these literary reviews do not touch upon the scientific inaccuracies, as the writers are not versed in bee-keeping. Fortunately, most, if not all, of the errors in the book are not of a nature to do bee-keeping an injury, while a perusal of the book by the general public will give aid in bringing about a more exalted opinion of bee-keeping.

Here is what the American Bee Journal says:—

"The Life of the Bee;" by Maurice Maeterlinck, translated by Alfred Sutro, is a unique work. It is not intended to supplant or to supplement any of the text-books as a text-book. The author says: "It is not my intention to write a treatise on apiculture or on practical beekeeping." The man who has mastered the contents of one of our excellent text-books will learn nothing new from this work. But he will find the everyday facts about bees, with which he is already familiar, painted in such exquisite fashion that they will seem almost new to him.

The book contains 427 pages, with an undue amount of white paper, for the page measures 7½ by 5 inches, while the printed portion is only 4½ by 27%.

One wonders at such spelling as "labour," "favour," "savour," and "waggon" in a book fresh from the press, and still more to find "swarm" used for "colony," and "hive" with the same meaning. But these are minor matters, and we must remember that the book is a translation

book is a translation.

The author savs: "I shall state nothing, therefore, that I have not verified myself, or that is not so fully accepted in the text-books as to render further verification superfluous. My facts shall be as accurate as though they appear in a practical manual or scientific monograph." Yet the practical bee-keeper will hardly forbear some doubt as to the accuracy of some of the supposed facts. Dzierzon's hive, "still very imperfect, received masterly improvement at the hands of Langstroth;" when, as a matter of fact, Langstroth completed his invention before ever hearing of Dzierzon's hive, and no after-improvement was made. (Page 15.)

Our author will delight the heart of the Rev. W. F. Clarke, when he teaches that the bees "ensure the preservation of the honey by letting a drop of formic acid fall in from the end of their sting." (Page 43.)

Sixty or seventy thousand as the number of bees in an average swarm will stretch the credulity of the average beekeeper, to say nothing of our good friend, the editor of Gleanings in Bee-Culture. (Page 46.)

In speaking of preparation for swarming, the author says: "The bee-keeper has only to destroy in their cells the young queens that still are mert, and, at the same time, if nymphs and larvæ abound, to enlarge the store-houses and dormitories, of the nation, for this unprofitable tumult instantaneously to subside, for work to be at once resumed, and the flowers revisited; while the old queen who now is essential again, with no successor to hope for, or perhaps to fear, will renounce this year her desire for the light of the sun." (Page 56.) Beautiful as is the language in that sentence, and much as the practical bee-keeper would like to believe it, he will hardly believe it a general rule that when preparations for swarming are made, all he has to do is to destroy queen-cells and give more room to secure the abandonment of all further thought of swarming for the season,

Do swarming bees carry with them "a certain amount of proplis," as stated on page 58? G. M. Doolittle must change his practice if he believes the teaching on page 87, that the workers accompanying a queen sent by mail should be "selected as far as possible from among the oldest bees in the hive." On page 100, we are told the workers will never sting a queen. The bees of an issuing swarm "have abandoned not only the enormous treasure of pollen and propolis they had gathered together, but also more than 120 pounds of honey." (Page 132.)

After a swarm is sufficiently settled, the queen begins to lay. "From this moment up to the first frosts of autumn, she does not cease laying; she lays while she is being fed, and even in her sleep, if indeed she sleeps at all, she still lays." (Page 215). When a young bee has gnawed open its cell, "the nurses at once come running; they help the young bee to emerge from her prison, they clean her and brush her, and at the tip of their tongue present the first honey of the new life." (Page 236). Other errors can be found for the seeking.

Beauties can also be found, and with less seeking. In fact, they abound. Take a passage, selected almost at a random, from page 234. A swarm has issued and the old home seems deserted:

"And for all that the moment may appear gloomy, hope abounds wherever the eye may turn. We might be in one of the castles of German legend, whose walls are composed of myriad phials containing the souls of men about to be born. For we are in the abode of life that goes before life. On all sides, asleep in their closely sealed cradles, in this

infinite superposition of marvellous sixsided cells, lie thousands of nymphs, whiter than milk, who, with folded arms and head bent forward, await the hour of awakening. In their uniform tombs, that, isolated, become nearly transparent, they seem almost like hoary gnomes, lost in deep thought, or legions of virgins whom the folds of the shroud have contorted, who are buried in hexagonal prisms that some inflexible geometrician has multiplied to the verge of delirium."

A considerable portion of the book is philosophizing about taken up with things remotely connected with beekeeping, if connected at all, many successive pages having no reference to bees, and the philosophy is by no means of the most optimistic character. The last 60 pages are occupied with a plea for evolution, the whole 60 pages being to the man who seeks practical instruction about bees an utter void. As arguments to show progress in the development of bees is cited, the fact that flour will be used in place of pollen, cement in place of propolis, and the fact (?) that black bees transported to California, where summer is perpetual, after one or two years "will cease to make provision for the winter?"

But when the author confines himself to bee-talk, his work is commendable in the extreme for its exquisite beauty. If the publishers were to cut out perhaps a third of the book, giving only the part relating directly to bees, it would no doubt be more relished by bee-keepers in general.

The book is published by Dodd, Mead & Co., 372 Fifth Ave., New York, N. Y.

Price \$1.40, postpaid.

General Index to Volume XIV.

INDEX TO SUBJECTS.

A B C of Bee Culture, New Edition of	-85
Advertising	. 16
Advertisements	308
Adel Bees	276
Amateur Bee-Keeping	
American Bee-Journal Office, Fire in	
American Bee-Keepers' Frontispiece in Nat-	
ural Colors	24:
American Bee-Keeper	. 1
Amusing Incident, An	
	21
Amusing Incident, An	21; 12
Amusing Incident, An. Artificial Swarms. Basket for Cappings in a Solar Wax Extractor	21; 12
Amusing Incident, An	21; 12

Barrels for Honey47
Bee Moths not an Unmixed Evil
Beeswax, the Effect of Slow Cooling upon the
Color of
Beeswax, Slow Cooling of88
Beeswax as a Lubricant273
Beeswax production
Bee-Shed, Some of the advantages of a Well
Arranged 199
Bee-Keeping as a Business152
Pee-Escapes 241, 278
Bee-Escapes, Position for278
Bee-dress Worn by David Coggshall
Biology may help us, How a Study of333

Black Brood 22	Foul brood bill, Work for
Blankets vs. Cushions275	Foul brood Law, Michigan's Needed20
Box, a Hiving277	Foul broady Colonies May be Used with
Bottling Honey	Safety, Some Store-Combs from 10
Bottom Boards247	Frames, Shallow311
Breeding Bees, Contribution Towards a Sys-	Freeing Combs from bees
tematic Method of	Gasoline for Killing bee Mo h's larvæ 305
Bumble Bee Honey and Long-Tongued Bees, 211	Getting bees off the Combs242
Buffalo Convention215	Glocuse, Detecting47
Business Methods115	Goold, Shapley Muir Co242
Business, The Importance of Courage in52	Groups of Four, Hives in
California Bee-Keeping, Some Features of5	Grass in a bee Smoker
Cautionary Labels	Granulated Honey out of the Combs, Get-
Celluloid Base for Foundation210	ting 47
Cellar upon the Approach of Spring. Keeping the Bees Oniet in the	Heredity
Cellar for an Extracting Room, Using a47	the Laws of 80
Cement Coated Nails bad for Thin Covers304	Heddon Hives
Chaff Hives	Hive. Tool
Chaff Hives	Hive Covers 211
Changed Conditions Wake up Ree-Keer ers to 21	Hiving Swarms on Solid Combs of Honey,
Chicago Convention	148, 274
Chunk Honey	Hives for Packing bees in Winter242
Cleaning up Combs at the End of the Season, 15	Hiving Swarms 274
Cities and Villages, Kee ing Bees in	Home of the Review 232 Hopeful Field, The Most 279
Contagious Diseases Among Bees, and Secur-	Hopeful Field, The Most 270
ing Laws for their Suppresion 120	Hope for the Future lies in In proved Imple-
Colorado a great Honey Coun ry	ments Methods and Stock 105
Covers, Bottoms and Frames	House-Apiaries248
Colorado Convention	improvement of bees
Coggshall's, A Visit to	Introducing Queens, 15, 181, 213, 268, 297, 333
Coggshall Extracts, How21	Introducing Queens by the Use of Tobacco
Coggshall, Bee Dress Worn by David17	Smoke 181, 268
Comb Honey, Vs. Extracted May be Consid-	In-breeding
ered Even in Out-Apiaries 147	In-breeding, Instances in Which Nature
ered Even in Out-Apiaries 147 Courteous, Be	Abhors 234
Comments Upon Some Criticisms200, 336	Inversion of brood Combs 181
Cooling upon the Color of Beeswax, the Ef-	Irons in the Fire, Too Many277
fect of Slow	Keystore Co
Comments on the Chapman Article	Keeping bees in Cities and Villages150
Corking Honey Bottles	Killing the Queens Each Summer
Criticisms Inspired by the Rast Review140	Knowledge of Conditions, and Methods of
Criticisms and Praises	Manipulations, of more Importance than New Fangled Traps 104
Dark Combs Color the Honey, Do241 Deep Top bars114	Lateral Communication in the Supers Leads to
Diseases of Bees and Legislation148	a better filling of the Sections144
Doors for the Extracting Room	Labels for Honey Packages212, 274, 304
Drawn Combs in Sections	Late Introducing After brood is gone not al-
Drone, The Influence of the300	ways Successful 297
Drawn Comb not Built by a Newly Hived	Loading Combs on a Wagon, the best way of, 114
Swaim 213	Long-Tongued bees 115, 183, 185, 208, 211
Editors of Three of the Leading Bee Jour-	Long-Tongue bees—A Timely Warning115
nals, the	Long-Tongues is needed a Willingness to use
Edit rs of Bee Journals	Them, With 208
Eggs by Mail, Sending	Love for bee-keeping, Old 243
Equalizing Colon es274	Locality of the Most Importance, Is298
Evening in the Apiary	Locality, Influence of
Extracts, How Coggshall	Locality, Working According to72
Extracting Combs, Thick 273	Mating Queens in Confinement
Exactness in Hive Construction276	Mating of Queens, Understanding the Struc-
Extracted Honey, Requisites for Success in	ture and Habits of bees may Assist us in the
the Production of 204 Fallacies, Popular264	the 112 Measuring bees' Tongues
Faith in your Business, Have273	Minnesota Convention
Fancy Comb Honey in a Poor Locality, Pro-	Michigan Convention
ducing 177	
Feeding Back	Migratory Bee-Keeping14, 110
ducing	
Fertilization of Queens in Confinement49, 55 Feeding back Extracted Honey200, 215	Migratory Bee-Keeping
Fertilization of Queens in Confinement49, 55 Feeding back Extracted Honey200, 215	Migratory Bee-Keeping
Fertilization of Queens in Confinement49, 55 Feeding back Extracted Honey200, 215 Fertilization of Queens312 Finding Queens84	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening, 280	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feedding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening, 280 Foundation Full Sheets of 278	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feedding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening, 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening , 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which there has been 306	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feeding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening, 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which there has been 306 Foul brood 151, 176, 241	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feedding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which there has been 306 Foul brood 151, 176, 241 Foul brood Late in the Season, Treating 241	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feedding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening , 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which there has been 306 Foul brood Late in the Season, Treating 241 Foul brood Late in the Season, Treating 241 Foul brood Law, A Few Words About Mich-	Migratory Bee-Keeping
Fertilization of Queens in Confinement 49, 55 Feedding back Extracted Honey 200, 215 Fertilization of Queens 312 Finding Queens 84 Fire in American Bee Journal Office 17 Flint, The Home of the Review 167 Fly-Escapes 243 Foundation into Heddon Frames, Fastening 280 Foundation Full Sheets of 278 Foul Brood, Disinfecting Hives in which there has been 306 Foul brood 151, 176, 241 Foul brood Late in the Season, Treating 241	Migratory Bee-Keeping

Out-Apiaries not Profitable for every bee- keeper in all Localities 139	Wake up, Bee-Keepers, to Changed Condi-
Out-Apiaries, Start	ditions21, 8
Paralysis, bee	Wax from Cappings24
Past and Present Conditions and How to Meet the Future 78	Weddings
Pacific Pee Journal272	Weak Colonies
Packing Colonies for Winter	Extractors
Pan American Exposition, Apiarian Exhibits at the	Winter-Protection and Spring Manipulation, 13 Wintering Bees in Northern Climates, Prep-
Pan American, Apiculture at the	arations 295, 29
Paper Sacks, Extracted Honey in280	Wintering Bees on their Summer Stands26
Pear Blight and bees	Wintering Bees, Packing-Box for24 Winter Breeding, How to Prevent26
Phonetic Spelling305	Wisconsin State Bee-Keepers' Association
Pickled brood84	Workers may Exert upon the Oueens they
Politeness in business	Rear, the Influence that 30, Workers through the Queens Influence her
Protection in Wint r and Spring	Progeny, Can the 33.
Prevention of Swarming	Progeny, Can the 33. Yellowzones 8
Price on Queens, Putting a High	York's Father, Death of Bro8
Priority of Location306	INDEX TO CORRESPONDENTS.
Progress of the Science of Bee-Keeping43	
Quiet in the Cellar upon the Approach of Spring Keeping the bees	Barber Ira I
Queens in the Heddon Hive, Finding 277, 280	Bonney C. P
Queens, Old	Chapman S. B
Queen-Introduction, Some Theories Regarding	Clare F. B
Queen, Finding the	Coverdale Frank
Queens in Confinement, mating45	C aig Martha33
Queens, finding	Crane J. E 10,
Queens, Putting a High Price on212	Dadant C. P
Queens each Summer, Killing the	Davenport 280 Doolittle G.M. 82, 107, 183, 245, 310, 311
Rankin J. M	Doolittle G. M
Record of Each Colony, Keeping a273	Downer C. S
Requeening Colonies	Fargo Fred H
Reads, the Man who	Fowls (halon
Screw Cap on a Honey Can, Starting 9, 274	Free W. J
Screw-top Glass Jars	Getaz Adrian 200, 270, 334, 34. Gilstrap W. A. H 43, 139
Selection	Greiner F
Secretion of Wax	Green J. A. 29 Hamilton James 177, 24 Hand J. E. 14 Hall Russel J.
51111 DS011. MT. F. B. 181 244 1	Hand J. E 14
Slow Cooling of beeswax 88 Smoker, Lighting a 243	Hall Russel J
Smilax, Under the	Heddon James
Smoke, Don't use too Much	Heddon James. 13 Hershiser O. L. 87, 32
Solar Wax Extractor. 273 Spraying fruit Srees. 14	Hickox W
Stand Each Year, Putting The Same Colony	Howe Harry
on the Same	Howe Harry
Storing Comb Honey and Empty Combs 245 Stereopicion Views	Hyde H. H. G. Jackson J W
Stereopicion Views	Jackson Mrs. Geo
Having 82 Sugar, beet and cane	Jones B. F
Sugar Honey	Koeppen Chas. 102 Lathrop Harry. 136
Supply and Demand	Martin J. H
Super, How to get the bees of Two Queens to Work in one	McLean N. W
Success in bee Culture Comes from Exhaust-	McEvoy W 10, 151, 263 Miller Arthur C58, 80, 112, 141, 174, 268, 333
ing the Field with the Least Expenditure	Miller C. C312
of capital and Labor Supers not Sufficiently Exact nor Decisive,	Miller S. E
Experiments with free Communication in 7	Pouder Walter S
Swarms, Early	Rising J. H304
Teaching children Apiculture	Root E. R
food consumption 270	Scholl Lewis
Theories are Useful and Why 268	Sibbald H. G
Tin Pails for Storing and Shipping Honey45 Tongues, A Fine Point Regarding Long279	Smith R. H 109
Tongues, Leng h of Bees'	Somerford W. W
Transferring by the Modern Method A Cau-	Stollev Wm 199
tion Necessary When 214 Uncapping, Supporting Combs when 84	Thompson F. L
Unpainted Hives,	Tyrrell E. B
Variations, How they are Started, Intensified and Established	Victor W. O
and Established	Wallenmeyer J. C89

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Let me give my own experience: Years ago, while living at Rogersville, I made a specialty of rearing queens for sale. Before engaging in this work, I bought queens, and Italianized, not only my own bees, but all within three miles of my apiary. In buying those queens I think I patronized nearly every breeder in the United States; and, even in those years of inexperience, I was not long in noting the great difference in the different strains of bees. The queens from one particular breeder produced bees that delighted me greatly. They were just plain, dark, three-banded Italians, but, as workers, I have never seen them equaled. They seemed possessed of a steady, quiet determination that enabled them to lay up surplus ahead of the others. Easier bees to handle I have never seen. honey was capped with a snowy whiteness rivaling that of the blacks. In addition, they were hardy. If any bees came through the winter, it was colonies of this strain. They came as near being ideal bees as any I have ever possessed. All this was more than twenty years ago; but, several times since, I have bought queens of this breeder, and I always found this strain of bees possessed of those same good qualitiesindustry, gentleness, hardiness and a disposition to cap their honey white. I frequently corresponded with this breeder, and with those who had bought queens of him, and, finally, I became thoroughly convinced that he had a strain of bees far superior to the general run of stock. Whether this superiority results from length of tongue, about which there has been so much talk the past year, I do not know, but I do know that no bees have been found with greater tongue-length.

This breeder had always advertised in a quiet, unassuming sort of way, nothing in proportion to what the quality of his stock would have warranted, when, two years ago, I decided that I could help him, and benefit my readers, at a profit to myself, by advertising these bees in a manner befittingly energetic. I put the price at

\$1.50, but the conditions were such that it was impossible for any loss to fall upon a purchaser. The queens sent out were young queens just beginning to lay, but I guaranteed safe arrival, safe introduction, purity of mating, and satisfaction to the extent that, any time within two years, a purchaser could return the queen for any cause whatever, if he was not satisfied with her, and his money would be refunded, and 50 cents additional sent to pay him for his trouble. I have sold several hundred queens, sending them to all parts of the United States, and I have been asked to return the money in just one INSTANCE. I don't mean by this that no other complaint has been made, for there have been others, but in the other cases purchasers have very kindly allowed me to send other queens in place of those that did not prove satisfactory, Even with the best of stock and management there will occasionally be a poor queen. bly long journeys by mail have some bearing upon this part of the question. Losses in shipment are not serious; losses in introduction are not serious, unless it is during the dearth between the summer and fall honey-flows; mismated queens are not worth considering, they don't exceed one per cent.; but all of these losses have cheerfully been made good.

As to testimonials, regarding their superiority, I could fill page after page with them. I have occasionally published a few, but what is the use? Any one can try this strain without taking a particle of risk.

From the very first, the demand has been greater than the supply. The opening of the season usually finds me with at least 200 orders on hand. Any one wishing to try one of these queens next year, ought to order it this fall, as orders are booked and filled in rotation. still offering them at the same price and under the same conditions as before, viz., \$1.50 for a queen alone, fu'ly guaranteed as above stated, or a queen and the Review for one year for only \$2.00. This offer is open to either old or new subscribers. If you wish to try one of these queens next spring, better send in your order when you send your renewal to the Reviewremember, \$2.00 pays for both—and then you will get the queen early in the season.

W. Z. Hutchinson, Flint, Michigan.

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By special arrangements with THE A. I. ROOT CO. to furnish them queens, I have secured their assistance in procuring the finest breeding queens that a thorough knowledge of the bees of the country and money can procure. Among them is a select daughter of their \$200 queen that they refused to quote me prices on. This queen shows every superior quality of her mother. Her bees show an actual reach of 21-000 of an inch; are large, gentle, and beautiful to look upon.

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REMEMBER the bear picture goes as a premium on six queens. 1901, unt sted queens will be ready to mail March 25 to April 1st. Send in your order at once, and get in on the ground floor. Breeders, select tested, and tested queens go by return

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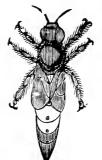
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W. Z. HUTCHINSON, Flint, Mich.

Printed Stationery.



If you don't use letter heads and envelopes with your name, address and business printed upon them, there must be some reason for it. If your correspondence is not very extensive, perhaps 70u think it is not worth while to incur the expense of printing; if so, let us have a little talk about it. In the first place, when you do write a letter, you need a printed heading for exactly the same reasons as the man who writes 100 letters in a day. A neatly printed letter head gives to the reader a favorable impression of the writer-that he is a man of business, or some importance. Then there are so many careless, or forgetful penman, or those who sign their names with a flourish, that the sight of a neatly printed name and address on a letter, is a great source of comfort to the recipient -none knows this better than the man who receives large numbers of letters. A man writes his name a great many times, and it looks perfectly plain to him, but it is not always plain to one not acquainted with his signature. Then, a man may forget to sign his name, or to address the envelope, or to put on a postage stamp; if his name and address are printed upon both the letter and envelope, the troubles arising from these neglects are largely remedied. Sometimes the writer is thereby saved from serious loss or annoyance.

Now a little explanation as to the price at which I can furnish printed note heads and envelopes. Since my daughter who has set my type for several years, has married, I am obliged to pick up whom I can to set the type. The trouble is that there is not work enough on the Review to keep a compositor busy more

than half the time, and I wish to make work enough so that I can keep a good man busy all of the time. I have bought a new press of the latest style, for doing job work, and engaged Mr. Hartshorn, (my daughter's husband) who has had experience as a printer, to set my type and do job work, and I wish to secure enough to keep him busy. I have no rent to pay, and my principal object is to receive work enough to keep him busy all of the time, rather than to make any great profit on his work; hence I shall make special prices on small lots of printed note heads and envelopes—so low that a man who does not write more than one letter a week can afford to use printed stationery. I have bought several new fonts of type especially adapted for this kind of work. It is called Engravers Gothic, and is the neatest thing in this line that I ever saw. I will send 100 sheets of paper with your name, address, and business, printed at the top, all made into a pad so there will be no loose sheets, and 100 envelopes, with your name, address and business printed in the upper left hand corner, postpaid, (remember that) for only \$1.25! makes no difference where you live in the U. S., this lot of printed stationery, enough to write 100 letters, will be delivered to you for only \$1.25. per used will be the best white wove, 7lb. Wawasa, and the envelopes extra superfine, white wove, XXX, high cut. The material is the best of its kind, and the work will be strictly first class.

I will also club the Review with this lot of stationery. I will send you the Review for one year, and this lot of 100 sheets of paper, and 100 envelopes, post-

paid, for only \$2.00. This will furnish you printed stationery, of the finest kind, for writing 100 letters, at a cost of only one cent each. If you want 500 sheets of paper, and 500 envelopes, I will furnish them for only \$2.75 but they must be sent by express at your expense. If you order 500 sheets of paper and 500 envelopes, at the price given, I will send you

the Review one year for only 75 cents extra, or \$3.50 in all.

If you wish for bill heads, statements, cards or circulars, I shall be very glad to correspond with you, and give prices. Orders will be greatly appreciated; and I shall take great pleasure in filling them—in sending you the fresh, clean, beautifully printed sheets.

W. Z. HUTCHINSON, Flint, Michigan.

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write to the editor of the Review. He has a new Barnes saw to sell and would be glad to make you happy by telling you the price at which he would sell it.

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Write to the editor of the Review. He has an Odell, taken in payment for advertising, and he would be pleased to send descriptive circulars or to correspond with any one thinking of buying such a machine.

Here we are to the Front for 1901 with the new Champion Chaff - Hive, a comfortable home for the bees in summer and winter. We also carry a complete line of other supplies. Catalog free. R. H. SCHMIDT & CO.,

Please mention the Review.

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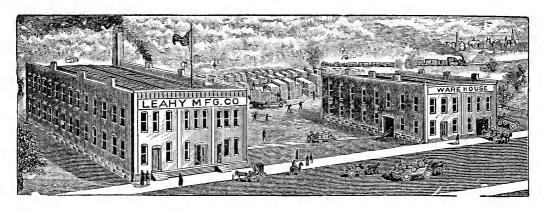
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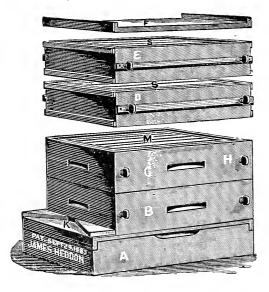
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Many Improvements This Year.



We have made many improvements this year in the manufacture of bee-supplies. The following are some of them: Our hives are made of one grade better lumber than heretofore, and all that are sent out under our new prices will be supplied with separators and nails. The Telescopic has a new bottom board which is a combination of hive stand and bottom board, and is supplied with slatted, tinned separators. The Higginsville Smoker is much improved, larger than heretofore, and better material is used all through. Our Latest Process Foundation has no equal, and our highly polished sections are superb indeed. Send five cents for sample of these two articles, and be convinced. The Daisy Foundation Fastener—well, it is a daisy now, sure enough, with a pocket to catch the dripping wax, and a treadle so that it can le worked by the foot.



The Heddon Hive.

Another valuable adjunct to our manufacture is the Heddon Hive. Wo do not hesitate to say that it is the best all round hive ever put upon the market; and we are pleased to state that we have made arrangements with Mr. Heddon to the end that we can supply these hives; and the right to use them goes with the hives.

Honey Extractors.

Our Honey Extractors are highly ornamental, better manufactured; and, while the castings are lighter, they are more durable than heretofore, as they are made of superior material.

The Progressive Bze-Keeper.

Last, but not least, comes the Progressive Bee-Keeper, which is much improved, being brimful of good things from the pens of some of the best writers in our land; and we are now making of it more of an illustrated journal than heretofore. Price, only 50 cts. per year.

Send for a copy of our illustrated catalogue, and a sample copy of the Progressive Bee-Keeper. Address

LEAHY Mfg. 60., East St. Louis, Ills. Omaha, Nebraska.,

DADANT'S

Foundation

By the new Weed Process is made in the best manner, upon the best machines, and from the best wax—that free from dirt, pollen, propolis, burnt wax, etc., that decrease its tenacity and make it offensive to the bees. Every inch of foundation is guaranteed to be equal to the sample that will be sent upon application.

Langstroth on the Honey Bee, revised, Smokers, Tin Pails, Sections and other supplies. Send for circular.

Dadant & Son,

Hamilton, Ills.

Our New Catalogue,

describing and listing the Finest Line of Bee-Keepers' Supplies in the World, will be ready about the first of the year. If you have not been receiving a copy annually, send us your name and address and one will be mailed you free. Prices will be the same as last season with the exception of the narrow, plain sections with no bee ways, which will be 25c, per M less.

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Mfg. Co., Marshfield, Wis.

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Price of the book; 50 cts.; the REVIEW one year and the book for \$1.25. Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON, Flint, Mich.



E. R. Root has just returned from a 6000-mile trip through some of the best bee locations in the world, and has already begun his series of write-ups, accompanied with fine photos, in Gleanings in Bee Culture. The following editorial appears Aug. 1st, and will give something of an idea of what he will describe:

Some little time ago I promised to tell about the bee-keepers' paradises in Texas. I have this on the docket, and it will appear as I take up my line of travels. But since running across that paradise I have run into two or three others. There is one west of the Rockies, in Colorado, that is not yet overstocked with bees or bee-keepers; another one in Central Idaho—in fact, I do not know but the whole State. These will be described in turn. The fact is, millions of capital are being invested in irrigation; irrigation means alfalfa; alfalfa means a paradise for bees. But I found all along my trip that alfalfa-growing preceded bee-keeping by two or three years, for it seems to take about that length of time before the bee-keepers find these gold mines that have been hitherto unoccupied.

If you are dissatisfied with your present location, and for financial reasons, or on account of health, will be compelled to leave, subscribe for Gleanings in Bee Culture, and learn something about the great South and the great West. There are many locations in the West that are not yet occupied—splendid bee locations. If you wish to learn about them, send 25 cents for a six-mouths trial subscription, or \$1.00 for one year, and one untested Italian queen. Or send \$2.00 and we will send Gleanings one year and one of our celebrated red-clover queens.

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